Mines and Mineral Activities 1982

Canada

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Northern Affairs Program

Echo Bay's new Lupin gold mine near Contwoyto Lake. This mine is the newest mine in the Northwest Territories. Photo courtesy of Echo Bay Mines Limited.

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Introduction

This report covers mines and mineral activities north of 60° for the calendar year 1982.

This report was written and edited by T.W. Caine and D.D. Brown. The section on economic and policy analysis was prepared by the Mineral Policy Division under the direction of J.W. Fraser. Sections on mineral exploration were based on papers prepared by J.A. Morin, K.J. Grapes and R.L. Debicki on the Yukon and by W.A. Padgham, W.A. Gibbins, P.J. Laporte, C.C. Lord and J.B. Seaton on the Northwest Territories.

It is with great pleasure that I present a revised edition of *Mines and Mineral Activities*. This year, the publication has a new format, which provides a more comprehensive picture of mineral activity north of 60°. This has been achieved through the addition of an economic and policy analysis section to complement the wealth of technical and statistical material which has always been a feature of the report.

These changes are designed to better reflect the importance of the mining sector to the regional economy and its interrelationship with the Canadian economy as a whole. The unusually severe economic recession which characterized 1982 has only served to underline the contribution of mining to both the Yukon and Northwest Territories. The industry has been and will continue to be a driving force behind northern economic development. Its role can only be reinforced as the global economy improves and metal markets recover.

The Department of Indian Affairs and Northern Development has also undergone a reorganization to reflect this high profile. I recently established a Mining Management and Infrastructure Directorate within the Northern Affairs Program which pools sectoral expertise. The Directorate is responsible for the formulation of policies, legislation and regulations to promote the orderly management of mineral resources; the assessment of mineral projects; and on-going administrative functions. The inclusion of infrastructure serves to recognize the linkage between mining and the development of transportation and communications services.

I hope that this new edition of *Mines and Mineral Activities* will provide readers with a more complete view of the northern mineral industry's activities during the year under review. This is all the more important since my Department has begun work on a northern mineral policy designed to provide a framework for the future development of this sector. The successful development and implementation of such a policy will depend to a large extent on the dialogue between those affected by such a policy and those tasked with its formulation. If this report serves to better inform you the reader, then one step in such a consultative process will have been fulfilled.

John C. Munro

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Executive Summary

The mining industry is the principal non-governmental activity in both the Yukon and Northwest Territories. During 1982 and early 1983, the mining sector in both Territories felt the impacts of the world economic recession. Low metal prices, coupled in some cases with high inventory and low demand, resulted in mine shut-downs, production cutbacks and indefinite layoffs. In the Yukon in particular, the repercussions of the shut-down of all mining operations was felt throughout every sector.

Northwest Territories

Overall mineral production from the ten mining establishments in the Northwest Territories rose during 1982 to $569 million which represents an increase of 43 percent over the 1981 current dollar value. The value of mineral production and quantities of lead, zinc and gold mined increased significantly because three new mines were in their first full year of production during 1982. These were Echo Bay's Lupin gold mine, the Cullaton Lake gold mine and Cominco's Polaris lead-zinc mine. In addition, Canada Tungsten's Cantung Mine produced tungsten concentrate for the full year, following an extended strike in 1981. Terra Mines Ltd's Camsell River mine also resumed production in mid-year of its silver concentrate.

By year-end, it was evident that the mining industry of the Northwest Territories, the largest private sector contributor to the territorial economy, was suffering from the severe effects of world-wide recession and in particular from low base metal and tungsten prices.

In the Northwest Territories, heavy operating losses resulted in the closure on January 2, 1983 of the Territories' largest mine, the Pine Point lead-zinc mine, controlled by Cominco Ltd. In addition, Canada Tungsten Mining Corporation's Cantung tungsten mine, controlled by Amax Inc., closed on January 21, 1983 because of low tungsten prices and high concentrate inventories. With the expectation of metal price improvements in 1983, production at the two mines is expected to resume.

In 1982, exploration expenditures in the Northwest Territories declined to approximately $22 million from $50 million in 1981.

Yukon Territory

In the Yukon Territory, the permanent closure of Whitehorse Copper Mines due to depletion of its ore reserves and the indefinite closure of Cyprus Anvil's Faro and Tantalus Butte mines and United Keno Hill Mine's Elsa operations, introduced an economic climate where, for the first time in decades, there were no year-round operating mines in the Territory. These adverse developments were beyond immediate remedy given the general economic recession and poor world metal markets.

Due to mine shut-downs and closures, the current dollar value of mineral production in the Yukon Territory fell to $168 million. This represented a decline of 37 percent from the 1981 figure of $268 million. The number of Yukon placer gold operations also declined because of low gold prices during the first half of 1982.

Prospects for lode mining in 1983 hinge largely on the resumption of full-scale operation by Cyprus Anvil Mining Corporation of its lead-zinc mine near Faro. The Anvil mine is the largest private sector employer in the Territory and the effects of its closure on June 4, 1982 have been felt throughout the Yukon economy. Since this time, the Department of Indian Affairs and Northern Development and Cyprus Anvil have been co-operating in the development of a number of action plan proposals to get the Faro Mine back into production. Full-scale re-opening, though, awaits an improvement in lead and zinc prices.

United Keno Hill Mines silver-lead mine shut down in mid-July 1982 due to large operating losses and low silver prices. An improvement and stabilization in silver prices is necessary if the mine is to remain open.

Due to high interest rates and the generally poor economic climate, mineral exploration expenditures in the Yukon declined to approximately $22 million from $50 million in 1981.

Future Developments

The outlook for resumption of growth in the northern mineral industry is dependent on general economic recovery. In 1983, decisions will be made on whether to re-open the Cyprus Anvil, United Keno Hill, Pine Point and Canada Tungsten mine operations. If gold price increases are realized, new gold mining operations are likely to appear. The most promising are Giant Yellowknife's Salmita gold project, northeast of Yellowknife and Cominco's Ptarmigan gold property, near Yellowknife. In the medium term, Amax of Canada Ltd. has announced that its $171 million Mactung tungsten project, on the Northwest Territories-Yukon border, is slated to commence production in 1986-87. The Mactung deposit is the largest tungsten deposit in the western world with 57 million t averaging 0.95 per cent WO_3 (tungsten trioxide). At capacity production, the Mactung and Cantung mines will each produce approximately 3.2 million kg of tungsten contained in concentrate per year. At this level of output, Canada will be the largest producer of tungsten in the western world.

Economic and policy analysis

Introduction

The northern mineral industry, through its wide-ranging direct and indirect impacts, provides the basis for the major share of the economic activity in the Yukon and Northwest Territories. Economic impacts are not restricted to the territorial economies, however, since important linkages have been established with some provincial economies. In addition, the industry makes a significant contribution to Canada's external trade in minerals.

Starting with this issue, *Mines and Mineral Activities* will present an annual analysis of the economic impact of the industry at both the national and regional level. Relevant policy developments will also be reviewed. The addition of this economic and policy dimension to complement the technical and statistical data in the report will provide a more comprehensive appreciation of mineral related developments, as well as an insight into the future course of the industry. A brief summary from 1976 to 1980[1] of regional and national impacts has been included to provide a framework against which to compare current and future developments within the industry.

The Northern Mineral Industry in the Canadian Economy: 1976-1980

The Yukon and Northwest Territories encompass about 40 percent of Canada's total land mass but are inhabited by less than one half of one percent of its population. Both Territories are richly endowed with resources but their mineral potential has only begun to be developed.

[1]Due to data gaps for 1981, only the period 1976 to 1980 has been included.

Nevertheless, the mining industry in the Territories accounted for an important share of total Canadian production of lead, zinc, silver and gold. Over the period 1976 to 1980, these shares amounted to 43, 27, 18 and 15 percent respectively. In addition, during the same period, all of Canada's tungsten production came from north of 60°. In total, the industry accounted for about 6 percent of the national value of non-fuel mineral output in 1980.

Significant changes, though, have occurred in the last two years. By 1982, lead production had fallen to 40 percent of Canada's total production while zinc had steadily risen to 33 percent. Although silver still maintained its relative market share in 1981, it fell dramatically to 6 percent of Canada's total in 1982 due to the mine shut-downs and closures in the Yukon during the second half of the year.

The industry is also making an important contribution to the Canadian balance of payments since more than 77 percent of the revenue generated by northern mining is through export sales. Over the period 1976 to 1980, export sales from northern production had an annual average value of $141 million. By 1980, this figure had reached $338 million.

In addition to this contribution, more than 96 percent of the purchases made by the industry (excluding salaries, wages and benefits) were made in Canada over the period 1976 to 1980. In 1980 alone, these purchases totalled about $375 million. The manufacturing, transportation and trade sectors in Quebec, Ontario, Alberta and British Columbia were the major beneficiaries of these purchases.

The northern mineral industry plays a key role in the overall Canadian economy. It makes important contributions to total mineral production and sales in the world market. With a mineral potential that is not fully known but which is expected to be more fully developed over the coming years, this role can only be expected to expand.

The Northern Mineral Industry in the Northern Economy: 1976-1980

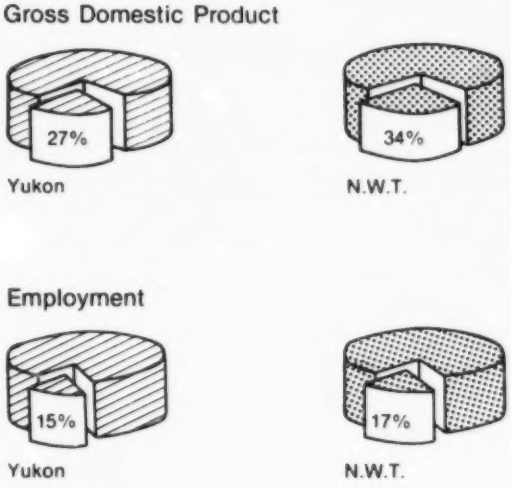
Mining is one of the most important economic activities in the Territories. An appreciation of its importance can be gained by an examination of selected socio-economic indicators which illustrate the varied and widespread impacts of the industry on the Territorial economies.

One indicator is the contribution of mining to Gross Domestic Product (GDP) which measures the value of all goods and services generated within the Territories within a given year. During the period 1976 to 1980, mining and oil and gas operations in the Yukon and NWT contributed 27 and 34 percent respectively of GDP. Separate estimates made in 1980 of mining alone, showed its contribution to be 29 and 36 percent respectively.

Direct and indirect employment generated by the mining industries in both Territories gives another indication of the importance of mining. Over the period 1976 to 1980, the industry directly employed 16 percent of the total labour force. In addition, it was estimated that indirect effects on the Territorial economy were such that each person-year of employment created by the mining industry generated three quarters of a person-year of employment in other key sectors. Indirect employment, therefore, accounted for another 12 percent of total employment. In total, the industry is responsible for the employment of 28 percent of the total labour force in both Territories, which amounted to some 5,400 people in 1980.

In addition, average earnings provided by the northern mining industry have been high. During 1976 to 1980, average annual earnings per employee, including special benefits, were around $29,000. By comparison, over the same period, average annual earnings in the Canadian mining sector were $25,000 and $16,000 in Canadian industry as a whole. In 1980, average earnings in the northern mineral industry rose to $35,000 which was 17 percent higher than in the mineral industry as a whole and 94 percent higher than average earnings in Canadian industry. This represented a total earnings package of $189 million for the two Territories.

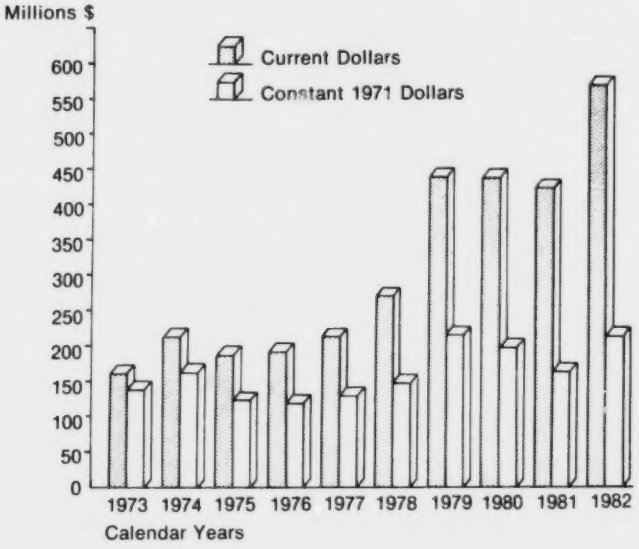
Figure 1
Relative Importance of the mining industry to the Yukon and Northwest Territories (1976-1980)



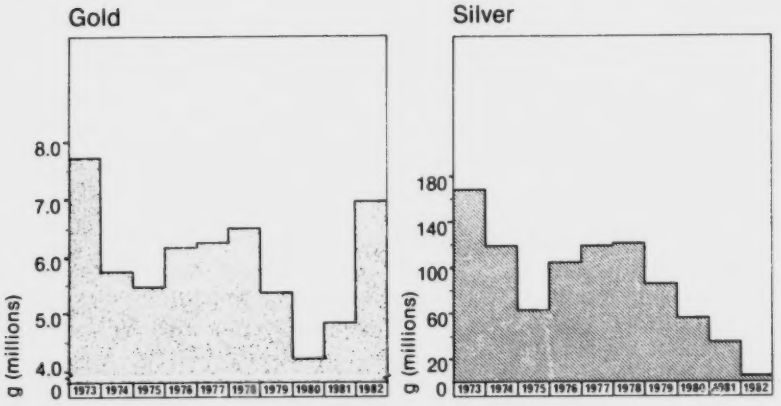
In keeping with its substantial contribution to overall economic activities in the Yukon and the NWT, the mining industry is a major source of direct capital expenditure. Total investment in plant and equipment over the period 1976 to 1980 has averaged $67 million per annum. In 1980, machinery and equipment peaked at a total expenditure of $131 million — an increase of some 96 percent over the average — due to the construction of the Prairie Creek, Lupin, Cullaton Lake and Polaris mines. Plant construction expenditures, including surface construction and underground work, have also grown considerably from a five year average of $21 million to $33 million in 1980.

Figure 2
Northwest Territories

Value of Production



Mineral Production



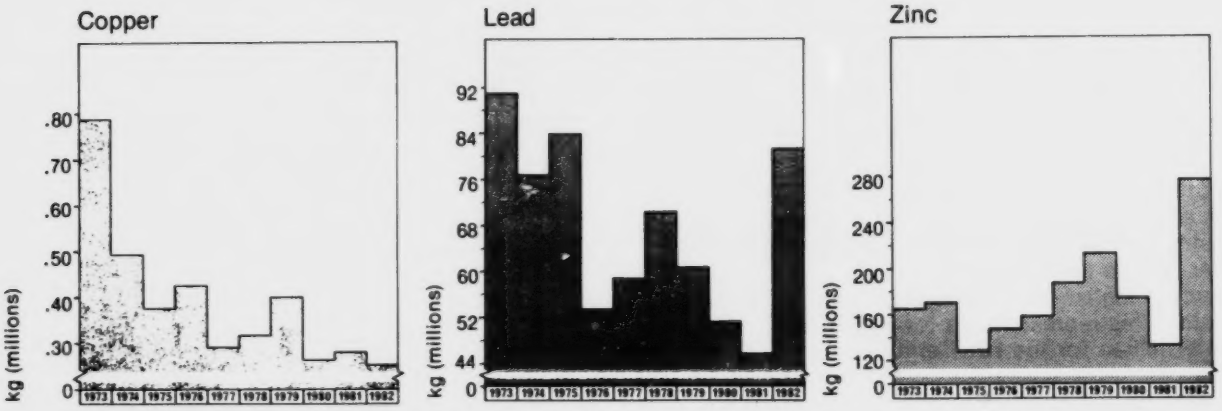
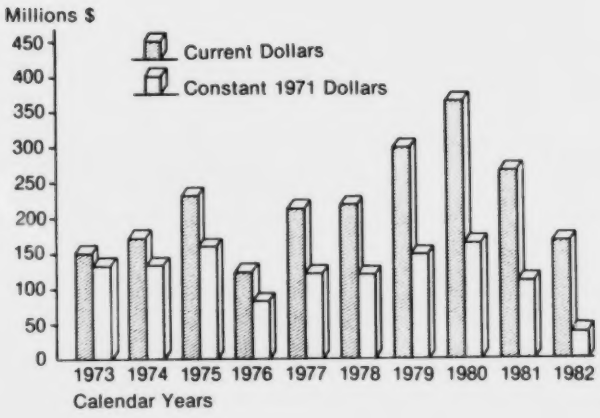
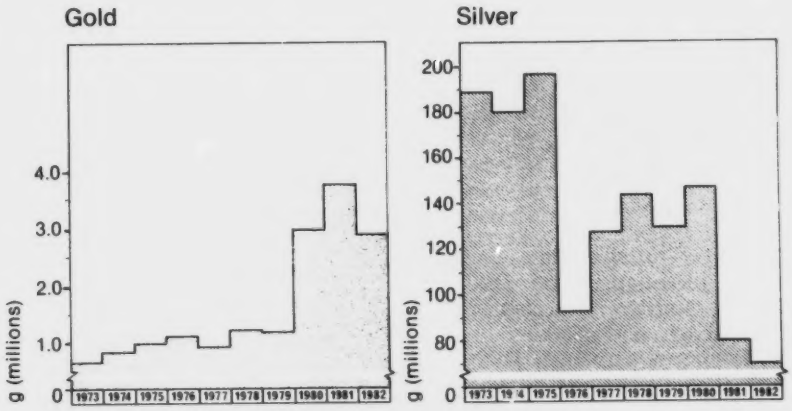


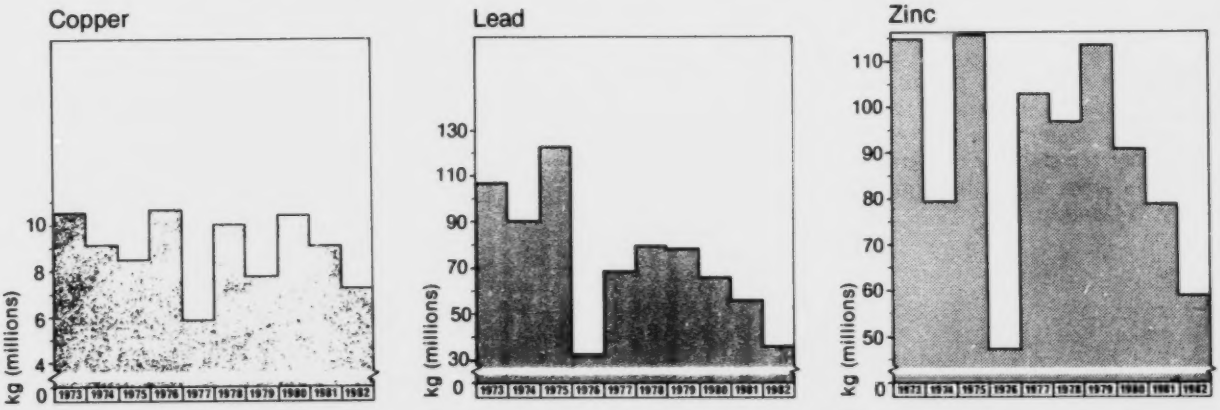
Figure 3
Yukon Territory

Value of Production



Mineral Production





Exploration and development expenditures were high reflecting confidence in the future growth of the mineral industry. Over the five years from 1976-80, they averaged $57 million but by 1980 had reached a figure of $75 million.

A final indicator is the portion of overall government revenue generated by the mining industry in both Territories. Over the period 1976 to 1980, $57 million in taxes was paid at the federal, territorial and municipal level. In 1980, this reached a total of $83 million.

Although it cannot be quantified, the mining industry has aided the development of infrastructure related to power, transportation and townsite construction which has helped to expand the economic scope and potential of the North. It has also provided varied job opportunities for Northerners.

Obviously mining has acted as a leading engine of growth in the Yukon and NWT. Due to the major role it plays in both economies, the mining industry is expected to continue to provide a strong and vital base for future Territorial growth and development.

Overview of the Canadian Mineral Industry: 1982

The year 1982 was marked by the worst world economic recession since the 1929 depression. The recession was characterized by a sharp reduction in the overall world demand for goods and services resulting in lower levels of industrial activities. This, in turn, resulted in a drastic reduction in the derived demand for metals and caused metal prices to plummet. The Canadian mineral industry, which is largely export-oriented, was severely affected. Poor metal markets, combined with exceptionally high interest rates during the period, caused many mining companies in Canada to end the year in a loss position. Many were forced to close their operations either temporarily or permanently and massive layoffs were made throughout the year by the industry in Canada.

The Northern Mineral Industry in the Northern Economy: 1982

The northern mining industry was not protected against the drop in world demand and metal prices. Mines in both Territories suffered revenue losses and some closed their operations pending an improvement in market conditions.

The Yukon mining industry was affected more severely than that of the NWT. Over the past decade the constant dollar value of mineral production in Yukon had remained relatively stable but in 1982, it plunged to a record low of $62 million. This was a direct result of the closure of all major mining operations within the Yukon by year-end. Cyprus Anvil and United Keno Hill were shut down indefinitely as a result of world economic conditions and Whitehorse Copper closed permanently due to depletion of its ore reserves. These mine closures resulted in the direct loss of 1 200 jobs. Due to the close integration and interdependence of the mineral sector with other sectors of the economy, the impacts of the mine closures were felt throughout the economy. The White Pass and Yukon Railway and its associated trucking system as well as a number of small businesses in the service sector were closed.

The impact on the larger NWT mining industry, which places a greater emphasis on precious metals than the Yukon, has not been as severe. In fact, the constant dollar value of mineral production rose 30 percent to $209 million surpassing the previous record set in 1979. This was due to the opening of three new mines: one base metal mine (Polaris) and two gold mines (Cullaton Lake and Lupin) in 1981 and 1982. In contrast to the Yukon, only two mines out of ten announced an indefinite closure by the end of 1982: Pine Point Mines Ltd., and Canada Tungsten Mining Corporation Ltd.. These closures directly affected about 800 workers but there were few other staff reductions at other mines in the NWT.

The Global Outlook

The outlook for the world economy in 1983 is somewhat brighter with most analysts predicting a slight recovery in the third and fourth quarters. Metal markets appear to be getting in balance and 1983 should see further price stabilization which may pave the way for some price increases. The severity of the recession has brought about some structural changes in the world economy which could affect the long term growth rate in the demand for some base metals such as lead and zinc. These changes, combined with the increased competition from developing countries, are important signs to the industry to stay vigilant by increasing efficiency and productivity in existing operations. Action is now under way within the industry to meet these challenges with cost cutting measures being implemented by most companies. Within this new economic environment, two criteria should guide the search for and development of new mineral deposits throughout Canada: low operating costs and high ore grades. Higher operating margins than before are necessary if new mines are to survive in this environment of increased competition and more widely fluctuating metal markets.

The Northern Mineral Outlook

As the global economy improves and metal markets begin to stabilize, the northern mineral industry will begin to recover from the reverses it had in 1982. Mines in both Territories will reopen as prices increase to levels which justify resumption of their operation. In the NWT, production is expected to return to the high levels of recent years but in the Yukon, structural changes may postpone this recovery for some time.

For the longer term, the Department of Indian Affairs and Northern Development (DIAND) is working on a northern mineral policy to guide future mineral development in the Territories. Although only the preliminary phases of policy development have been completed, the Minister of DIAND has already stated that he would like it to address such issues as the role of mining in the northern economy and the creation of a favourable investment climate through the maintenance of an appropriate fiscal and regulatory regime and the development of infrastructure. It should also take into consideration the role of native people and environmental concerns in order to establish an appropriate balance between resource development, people and the environment.

Mines and Mineral Activities

At the Con Mine, broken ore is hauled by modern rubber-tired scooptrams. Photo courtesy of Cominco Limited.

Introduction

The following sections of this report deal with mining production and development and mineral exploration activities in the North during 1982.

Mineral Production and Development

Mineral production in the Northwest Territories during the calendar year 1982 was valued at $569 million compared to $397 million in 1981 (see Table 8). Despite severely depressed world metal markets the value of mineral production increased 43 percent from 1981. Production of lead, zinc and gold increased because three new mines were in their first year of production. These are Echo Bay's Lupin Mine, the Cullaton Lake Gold Mine and Cominco's Polaris Mine. In addition, Canada Tungsten Mining Corp. produced tungsten concentrate for the full year, following a strike in 1981. Terra Mines Ltd.'s Camsell River mill resumed silver concentrate production in mid-year.

However, at year-end it was evident that the mineral resource industry of the Northwest Territories, the largest private sector contributor to the territorial economy, was suffering from the severe effects of worldwide recession, particularly the low base metal and tungsten prices. The largest mine in the NWT, Pine Point Mines Ltd., closed on January 2, 1983 and the tungsten operations of Canada Tungsten Mining Corporation closed on January 21, 1983. Production at both mines is expected to resume when metal prices recover.

Mines

Mineral production came from ten mining establishments: Canada Tungsten's Cantung Mine (tungsten), Cominco's Con Mine (gold), Cominco's Polaris Mine (lead, zinc), the Cullaton Lake Gold Mine (gold), Echo Bay's Eldorado Mine (silver, copper), Echo Bay's Lupin Mine (gold), the Giant Yellowknife Mine (gold), the Nanisivik Mine (lead, zinc, silver), the Pine Point Mine (lead, zinc) and Terra's Camsell River mines (silver, copper).

The Northwest Territories accounted for 28.0 percent of the lead, 26.9 percent of the zinc, 96.6 percent of the tungsten, 11.1 percent of the gold, 0.33 percent of the silver and 0.04 percent of the copper produced in Canada in 1982. The Northwest Territories accounted for 7.9 percent of the value of Canadian metallic mineral production.

The operating mines employed an average of 2 440 persons. By the end of January, 1983, 765 employees had been laid off through the closing of Pine Point's and Canada Tungsten's mines.

Table 1
Estimated Mineral Production
Northwest Territories, 1981-1982

Company and Commodity Mined	1982 t	1982 kg	1981 t	1981 kg
Canada Tungsten Mining Corp.				
tungsten trioxide	2948		2515	
Cominco Ltd,				
Con Mine				
gold		2466		2330
silver		603		465
Polaris Mine				
zinc	64 773		—	
lead	25 310		—	
Cullaton Lake Gold Mines Ltd.				
gold		788		11.56
silver		373		0.14
Echo Bay Mines Ltd.				
Eldorado Mine				
copper	241		317	
silver		178		349
Lupin Mine				
gold		34		—
Giant Yellowknife Mines Ltd.				
gold		2258		1825
silver		452		290
Nanisivik Mines Ltd.				
lead	13 947		11 056	
zinc	70 938		67 976	
Pine Point Mines Ltd.				
lead	69 037		60 515	
zinc	8 981		32 296	
Terra Mines Ltd.				
copper	9.5		—	
silver		26 717		1773

Source - Department of Indian Affairs and Northern Development and Department of Energy, Mines and Resources.

Canada Tungsten Mining Corporation

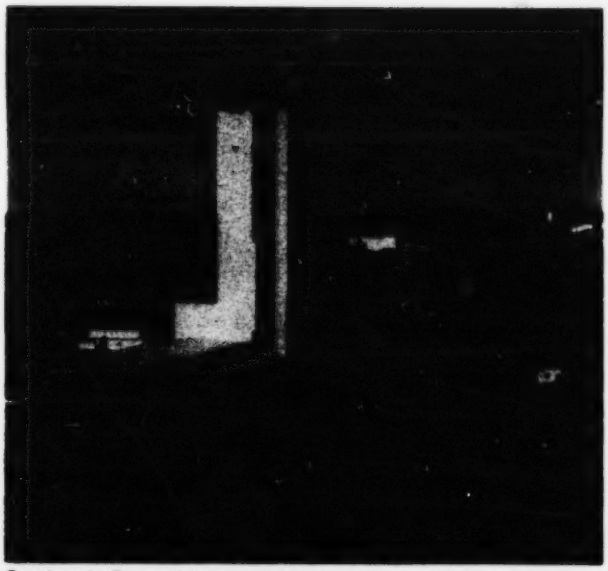
Canada Tungsten Mining Corp.'s Cantung Mine produced 2 948 t of WO_3 contained in concentrate compared to 2 515 t in 1981. On November 21, 36 employees of the then current work force of 240 were laid off. On January 21, 1983 the mine closed because of the weak demand and a precipitous decline in tungsten prices. An additional 174 employees were laid off. The company was monitoring the situation on a week by week basis with the expectation of resuming operations during 1983 when tungsten prices and market demand improve.

Type:	Underground
Location:	Tungsten
Product:	Tungsten in scheelite concentrate
Mill Rate:	915 t per day
Tonnes Milled:	327 494
Reserves:	2 760 000 t (Dec. 31, 1982)
Reserve Grade:	1.32% tungsten trioxide (WO_3)
Employees:	246

Cominco Limited - Con Mine

Cominco Ltd.'s Con Mine appears to be in the strongest gold producing position in the Northwest Territories. The tonnage milled increased from 176 000 t in 1981 to 210 000 t in 1982. The company may make a decision in 1983 to commence production at its small Ptarmigan gold deposit near Yellowknife. In November, the company started operation of its $13 million plant at Yellowknife to recover arsenic trioxide from arsenic wastes produced prior to 1970. This plant is expected to process 30 000 t of arsenic wastes over a five year period.

Type:	Underground
Location:	1.4 km south of Yellowknife
Product:	Gold, silver, arsenic
Mill Rate:	568 t per day
Tonnes Milled:	212 573
Reserves:	1 900 000 t (Dec. 31, 1982)
Reserve Grade:	16.1 g gold per t
Employees:	309



Cominco's Con gold mine at Yellowknife is a landmark in the Northwest Territories. Photo courtesy of Cominco Limited.

Cominco Limited - Polaris Mine

Cominco's Polaris Mine began commercial production in March, 1982 and concentrate shipments began in July. By the end of the shipping season in early October, bulk carrier ships had transported 117 000 t of zinc concentrates and 30 600 t of lead concentrates in six voyages to European markets. The company has indicated it may expand its operation to include mining of other deposits in the area if future lead and zinc markets improve.

Type:	Underground
Location:	100 km northwest of Resolute
Product:	Zinc, lead
Mill Rate:	1 284 t per day
Tonnes Milled:	469 700
Reserves:	21 954 000 t (Dec. 31, 1982)
Reserve Grade:	3.96% lead and 13.4% zinc
Employees:	222

Cullaton Lake Gold Mines Limited

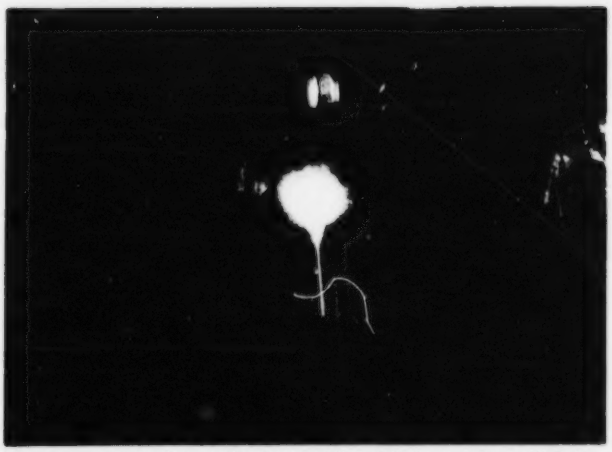
Cullaton Lake Gold Mines Ltd.'s new mine, 370 km southwest of Rankin Inlet, reached commercial production on January 1, 1983, at the design mill rate of 272 t per day. During 1982 the company resolved its break-in problems and improved its mill recovery rate. An exploration program is in progress to define additional ore reserves. The mill may be expanded to 454 t per day and plans are under way to increase both mine development and exploration of adjacent gold anomalies surrounding the mine.

Type:	Underground
Location:	Cullaton Lake area, Keewatin District
Product:	Gold, silver
Mill Rate:	203 t per day
Tonnes Milled:	66 123
Reserves:	181 437 t (Jan., 1983)
Reserve Grade:	17.1 g gold per t
Employees:	138

Echo Bay Mines Limited - Eldorado Mine

Echo Bay Mines Ltd. closed its mill on the Eldorado silver property at Port Radium in March, 1982 and personnel were transferred to Echo Bay's Lupin gold mine on Contwoyto Lake, 330 km east of Port Radium. The ore reserves at the Eldorado Mine were exhausted in December, 1981 but sufficient ore was stockpiled to allow the mill to continue until March, 1982.

Type:	Underground
Location:	Port Radium
Product:	Silver, copper
Mill Rate:	89 t per day
Tonnes Milled:	7 511
Reserves:	Nil (Dec. 31, 1981)
Employees:	47



Pouring a gold brick at the Lupin Mine. Photo courtesy of Echo Bay Mines Limited.

Echo Bay Mines Limited - Lupin Mine

Echo Bay Mines Ltd. poured its first gold bullion at the Lupin Mine, near Contwoyto Lake on May 4, 1982. Commercial production was achieved in October. The company commissioned a new production shaft to replace the decline adit which had been used to transport equipment, waste rock and ore. Underground drilling indicated that the ore body continues below the 650 foot level to the 1 210 foot level.

Type:	Underground
Location:	400 km northeast of Yellowknife
Product:	Gold
Mill Rate:	721 t per day
Tonnes Milled:	178 000 (approximate)
Reserves:	3 565 690 t (Dec. 31, 1982)
Reserve Grade:	13.5 g gold per t
Employees:	227

Giant Yellowknife Mines Limited

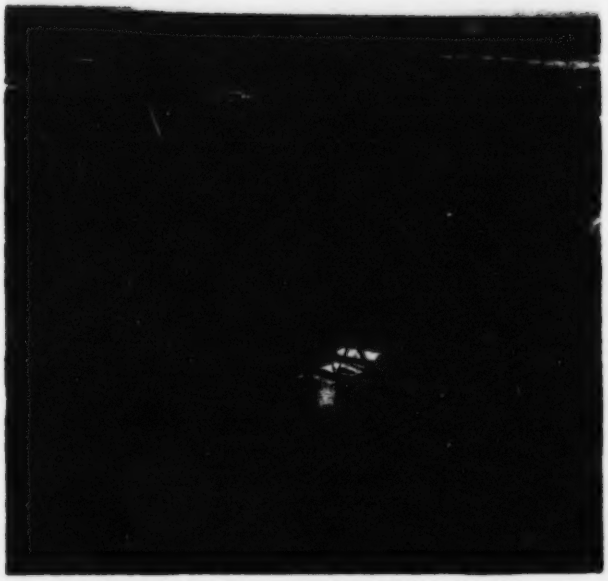
Giant Yellowknife Mines Ltd. marginally increased the amount of ore milled in 1982 but announced in October that production would be reduced in the first quarter of 1983 to 22 680 t per month from 29 938 t in order to extend the mine life to 1987. The company produced 1 800 t of arsenic trioxide in 1982 for commercial sale as an ingredient in wood preservatives.

Type:	Underground and open-pit
Location:	2.4 km north of Yellowknife
Product:	Gold, silver, arsenic
Mill Rate:	1 003 t per day
Tonnes Milled:	366 122
Reserves:	889 041 t (Dec. 31, 1982)
Reserve Grade:	8.23 g gold per t
Employees:	343

Nanisivik Mines Limited

Nanisivik Mines Ltd. milled approximately 630 000 t in 1982, the same tonnage of ore as during 1981 but the zinc content of ore processed was higher in 1982. Improved mill recovery and increased smelter payment for silver content did not offset the lower prices received for lead and zinc. The company is continuing its exploration program aimed at discovering additional ore reserves within trucking distance of the mill.

Type:	Underground
Location:	29 km northeast of Arctic Bay, Baffin Island
Product:	Zinc, lead, silver, cadmium
Mill Rate:	1 777 t per day
Tonnes Milled:	633 628
Reserves:	4 539 300 t (Dec. 31, 1981)
Reserve Grade:	4.3% lead, 6.6% zinc
Employees:	208



On the south shore of Great Slave Lake, Pine Point Mines is the largest mining operation in the Northwest Territories. Low metal prices and weak demand for lead and zinc caused the mine to be closed temporarily in 1983. Photo courtesy of Cominco Limited.

Pine Point Mines Limited

Pine Point Mines Ltd. milled 2.4 million t of ore in 1982, down 1.1 million t from the amount of ore milled during the previous year. The grade of ore in 1982 increased to 3.0% lead and 7.3% zinc from 1.98% and 4.8% respectively in 1981 because lower prices forced higher cut-off grades. Despite the increase in grade, reduction in tonnage milled and a major cost restraint program, the company continued to incur operating losses during the fourth quarter of the year. On January 2, 1983 the company closed the Pine Point mine and milling operation. The shut-down will be reviewed on a monthly basis and operations will resume when economic conditions permit. During the first quarter of 1983 the company was negotiating cost-reducing concessions from the United Steelworkers Union on wage rates, Northern Canada Power Commission on electric power rates and CN Rail on its rail rates for concentrate shipments.

Type:	Open-pit
Location:	Pine Point
Product:	Lead, zinc
Mill Rate:	6 589 t per day (approximate)
Tonnes Milled:	2 400 000
Reserves:	31.75 million t (Dec. 31, 1982)
Reserve Grade:	2.4% lead, 6.1% zinc
Employees:	622

Terra Mines Limited

Terra Mines Ltd. resumed mining at the Silver Bear Mine, in the Camsell River area, in early 1982. Considerable improvements were made to the mill to increase the grade of concentrate produced. The company resumed milling in late March. In the last quarter of the year, Terra began production of ore from its Norex and Smallwood mines with the ore being processed at the Silver Bear mill.

Type:	Underground
Location:	15 km south of Great Bear on the Camsell River
Product:	Silver, lead, zinc, copper
Mill Rate:	146 t per day
Tonnes Milled:	36 108
Reserves:	44 662 t (Sept. 30, 1982)
Reserve Grade:	1 152 g silver per t
Employees:	78

Outlook

The outlook for new mine development in the Northwest Territories include production decisions to be made on Giant Yellowknife's Salmita and Cominco's Ptarmigan mine projects. Both are small gold projects which will become more attractive if the rising trend of gold prices continues in 1983. Ptarmigan ore could be trucked the few kilometres from the mine to the Con mill near Yellowknife for processing. At year end, the Giant Yellowknife Mines Ltd. reported that the possibility of further development of the Salmita gold property, 250 km north of Yellowknife, appears encouraging but a production decision will be delayed pending a further review of technical data and economic conditions. Giant Yellowknife spent $2.98 million on exploration and

development of the property in 1982. The total expended to date on the Salmita Project is over $7 million. The deposit is a relatively small orebody with a short expected mine life. The company plans to use the 145 t per day mill located on the Tundra property located 6 km from the Salmita property.

In the Nahanni region, the development of Cadillac Explorations Ltd.'s Prairie Creek Mine was nearly completed in the spring of 1982. However, work was suspended at that time because of low metal prices and the need for construction of an all-season road from the Liard Highway to the minesite.

Borealis Exploration Ltd. carried out further exploration work on its Roche Bay (74) iron property on the Melville Peninsula. The company has announced its intention to bring the property into production by 1987.

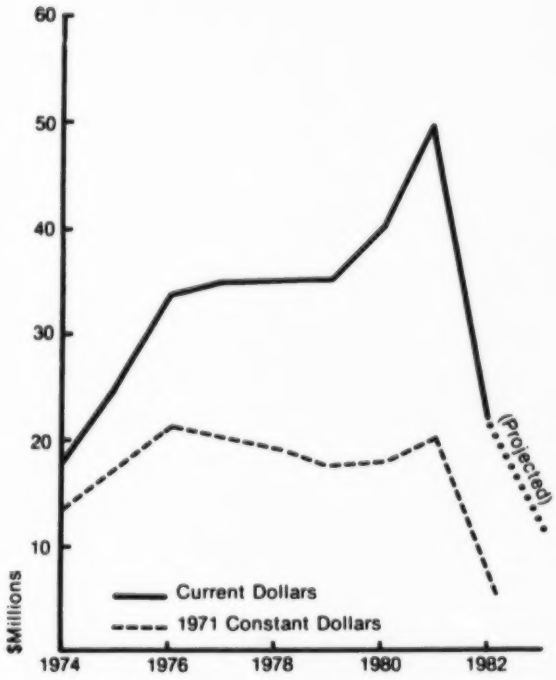
Mineral Exploration

The number of prospecting permits in the Northwest Territories issued during the calendar year 1982 increased to 91 from the 73 issued in the previous year, but of the 91 issued, 39 covered areas where coal exploration licences were granted in 1981. The area covered by staking of mineral claims declined drastically from 672 442 hectares in 1981 to 156 597 hectares in 1982.

Table 2
Claims Recorded in N.W.T.

	1982		1981	
Districts	Claims Recorded	Area (Hectares)	Claims Recorded	Area (Hectares)
Mackenzie	145	56 236	539	282 202
Arctic and Hudson Bay	106	82 837	479	381 514
Nahanni (Cordillera)	35	17 524	23	8 726
Total	286	156 597	1 041	672 442

Figure 4
Mineral Exploration Expenditures
Northwest Territories



Exploration expenditures during 1982 decreased to approximately $22 million down from $50 million in 1981. The Northwest Territories Chamber of Mines has forecast an exploration expenditure of $12 million for 1983.

Table 3
Surface Diamond Drilling in N.W.T.*

				Projects with more than 20 holes	
	No. of Projects	Total Holes	Total Meters	No. of Projects	Meters
Cordillera (Nahanni District)	3	61	10 734	1	8 428
Pine Point-Slave Lowland (Interior Plains)	2	1 297	70 000	2	70 000
Arctic Islands	6	89	8 101	2	4 034
Keewatin (Churchill Province)	13	187	17 345	3	8 224
Southeast Mackenzie (Churchill Province)	3	34	4 885	1	2 359
East Arm Subprovince	0	0	0	0	0
Bear Province	8	194	10 654	3	2 386
Slave Province	10	111	14 775	2	8 166
TOTAL	45	1 973	136 494	14	103 597

*Data includes drilling reported to October 29, 1982. Not all drilling projects have been reported.

Total surface diamond drilling amounted to more than 136 494m during the first ten months of 1982, a decline from the 175 306m reported in the same period of 1981.

The number of properties explored during 1982 was 125, down from 214 explored in 1981 and 164 in 1980. Of the 125 properties, 36 were explored predominately for base metals, 34 were uranium properties and 32 were precious metal properties. Base metal exploration increased over uranium exploration for the first time in over a decade because of increased base metal activity in the Arctic Islands, Pine Point-Hay River area, East Arm of Great Slave Lake, the volcanic belts of the Slave and Bear provinces and areas along the Yukon border. Uranium exploration declined significantly because of weak markets but exploration continued to be widespread with activity in Proterozoic sedimentary basins; the Thelon-Dubawnt-Baker Lake-Amer Lake region, the Nonacho Basin and the Hornby Basin. Precious metals exploration expanded in the Kaminak-Rankin volcanic belt in the District of Keewatin and in the greenstone belts within the Slave Province.

A summary of exploration activities is given in Table 7, and locations of these explorations are shown by numbers on Map 2.

Uranium

In 1982, the pattern of world excess uranium supplies with concurrent downward pressure on prices brought a slump to uranium exploration following the boom years of the 1970's.

Fourteen companies explored for uranium in the Northwest Territories during 1982. Most were active in the Thelon-Dubawnt-Baker Lake-Amer Lake region with a few exploring the Nonacho Basin and a few in the Hornby Basin and Hepburn metamorphic-plutonic belt east of Great Bear Lake.

In the area west of Yathkyed Lake (16) a crew from *Aberford Resources Ltd.* conducted geological surveys and limited diamond drilling on showings located on AGIP-Noranda-Aberford claims. A second crew mapped the basement complex south and east of Bissett Lake (14).

AGIP Canada Ltd., drilled uranium showings east of Dubawnt Lake (17) and northwest of Nowleye Lake (18).

Urangesellschaft Canada Ltd., had four crews working in the Dubawnt-Baker Lake-Amer Lake region. These crews explored and drilled showings north of Nowleye and Kamilukuak lakes (19), conducted geological mapping and geophysical surveys on claims south of Thirty Mile Lake (13) and southeast of Tebesjuak Lake (12), and prospected and surveyed claims east of Sand Lake (2). A large crew drilled extensions of the Lone Gull deposit (4), drilled another prospect and carried out geological, geochemical and geophysical surveys on previously identified anomalies and showings in the vicinity.

Noranda Exploration Company Ltd. carried out geophysical surveys which outlined conductors which were drilled later in the year on claims southeast of Bissett Lake (15).

Comaplex Resources International Ltd. carried out geophysical surveys on its claims northeast of Forde Lake (13).

North of Mallery Lake (11), *Anaconda Canada Exploration Ltd.* conducted mapping, geochemical and geophysical surveys and diamond drilled geophysical anomalies.

Westmin Resources Ltd. carried out detailed geochemical, geophysical and geological studies on its properties which extend from Amer Lake (1) to the edge of the Thelon Game Sanctuary north of Beverly Lake (10).

Uranerz Exploration and Mining Ltd. explored prospecting permits southeast of Deep Rose Lake (3), north of Beverly Lake (6) and south of Garry Lakes (8) with airborne and ground geophysical surveys and geochemical sampling.

Inco Metals Ltd. carried out geochemical, geophysical and geological surveys on its claims southeast of Sand Lake (5).

South of Garry Lakes (7), *Kidd Creek Mines Ltd.* explored and drilled its properties while *Union Oil Company of Canada Ltd.* carried out geochemical, geophysical and geological surveys on its properties (9).

In the Thelon Basin, *Urangesellschaft Canada Ltd.* explored claims held in partnership with *Hudbay Minerals Ltd.* in the Elk River belt (21) and *PNC Exploration (Canada) Ltd.* explored its prospecting permits and claims near Foster Lake (20).

PNC Exploration (Canada) Ltd. prospected, mapped and drilled 3 100m on its several properties in the Thekulthili Lake area (23, 24) in the Nonacho Basin. The company planned to drill an additional 2 000m on its properties in late 1982 or early 1983.

Uranerz Exploration and Mining Ltd. mapped several claim groups with potential for small high grade uranium deposits in the Power Lake area (22).

In the eastern-most part of the Hornby Basin, *B.P. Minerals Ltd.* explored in the Contact Lake area (26) while nearby at Munch Lake, *Anaconda Canada Exploration Ltd.* in a joint venture with *B.P. Minerals* and *Union Carbide Canada Ltd.* carried out geochemical, geophysical and boulder train surveys and overburden drilling at three sites.

To the south, from a camp at Fontano Lake (25) *Uranerz Exploration and Mining Ltd.* explored three areas in the northern part of the Hepburn metamorphic-plutonic belt.

Base Metals

Exploration for base metals expanded in the Arctic Islands and declined slightly in the traditional areas of base metal exploration: Pine Point-Hay River area, East Arm of Great Slave Lake, Kaminak-Rankin Inlet area, the Bear and Slave structural provinces and the Mackenzie Mountains.

In the Arctic Islands, *Petro-Canada Ltd.* explored the 39 prospecting permits it was granted in 1982 for lead and zinc deposits in the Allen Bay-Read Bay carbonates and Cape Phillips shales of the Bay Fiord-Strathcona Fiord area (28) of Ellesmere Island. The company also explored the Lower Paleozoic sediments and Precambrian gneisses on the west side of the Kane Basin (27).

A small crew from *Cominco Ltd.* examined showings in the Cornwallis lead-zinc district (29). Drilling to outline ore at the Polaris lead-zinc mine (i) continued.

Nanisivik Mines Ltd. explored areas near the Nanisivik Mine (f) in its search for additional ore-grade material. The company extensively tested airborne geophysical anomalies detected in the Neohelikian Borden Basin (30) southeast of the mine.

In the Kaminak-Rankin volcanic belt *Esso Minerals Ltd.* prospected, conducted geophysical surveys and packsack drilled prospects in the Kaminak (52), Yandle (53) and Carnecksluck (54) lakes areas for precious and base metals.

South of the East Arm of Great Slave Lake, prospectors *L. Anderson* and *W. Kizan* discovered several sulphide showings at Rutledge Lake (31). At the southwest end of the East Arm (32), *E. Dean* and associates explored for base metal mineralization.

Pine Point Mines Ltd. carried out large programs of induced polarization surveys and diamond drilling on its property near the Pine Point Mine (b). In 1982, Pine Point Mines reported more than 91 000m of drilling and the discovery of a new deposit of the same size and grade as the 0.9 million t (20 per cent lead-zinc) ore deposit found last year. The new deposit is two kilometres west of last year's discovery.

To the west of Pine Point, *Westmin Resources Ltd.* (33) drilled 6 096m on the Slave Reef property and *Cominco Ltd.* carried out seismic surveys on its Hay West Project (34) to outline favourable geological structures.

In the Bear Structural Province, *Noranda Exploration Company Ltd.* explored and excavated trenches on the BL and TROUT claims at DeVries Lake (35).

Exploration for massive volcanogenic sulphide deposits was more widespread in the Slave Structural Province than in the Bear Province where volcanic belts are less pervasive. Three companies conducted programs in 11 areas within the Slave Province.

Kidd Creek Mines Ltd. was the most active company within the Slave Province exploring three properties and nine prospecting permits. The company drilled more holes into the Hood River deposits near Arnoogabooga Lake (36), conducted electromagnetic surveys in the Izok Lake area (37), drilled 4 000m in 16 holes on the GONDOR claims near Olga Lake (38) which Kidd Creek optioned from *Noranda Exploration Company Ltd.* An unspecified tonnage of volcanogenic massive copper-zinc-lead-silver bearing sulphides was outlined by drilling. *Kidd Creek Mines* explored its other claim groups in the Central Volcanic Belt (38). *Kidd Creek Mines* geologically mapped its nine prospecting permits which occur in three areas 76B (41), 76G (40) and 76H (39).

Noranda Exploration Company Ltd. drilled exploration targets on several claim groups including the ICE, DELTA and SAXIFRAGE claims on the Hood River (42), the ARES claims north of the Hood River (43) and the CANOE claims (42) to the west of the ARES group.

Cominco Ltd. explored the KCL claims (44) in the High Lake area with a geochemical survey.

Noranda Exploration Company Ltd. explored numerous claim groups in the Hope Bay volcanic belt (45). Further south Noranda explored for base metals as a secondary target on its three prospecting permits near Uist Lake (63).

Exploration for base metals declined in the Nahanni District but activity was widespread.

Cadillac Explorations Ltd. constructed mine and mill buildings at its Prairie Creek Mine (silver, zinc, lead, copper) (46) but suspended work at the mine site in June. Cadillac's major shareholder and partner in the mine, *Procan Exploration Company* carried out regional stream geochemical sampling north of the mine (46).

Placer Development Ltd. carried out some exploration work at its Howards Pass lead-zinc property (48). The company announced that its XY deposit, which is predominately in the NWT, has drill indicated reserves of 59 million t of 2.1 percent lead and 5.4 percent zinc including 8.2 million t of 5.5 percent lead and 10.6 percent zinc. There is also reserve tonnage at the ANNIV deposit (in the Yukon) and inferred reserves for the Howards Pass property in excess of 360 million t of 7 percent combined lead-zinc.

On the VULCAN claims (47) *Aberford Resources Ltd.* drilled 305m and carried out a geochemical and mapping program.

Canadian Nickel Company Ltd. carried out a geochemical survey on its prospecting permits east of Misty Lake (49).

Noranda Exploration Company Ltd. carried out a regional exploration program in the Macmillan Pass area (67).

Gold

Exploration for gold deposits was concentrated in the volcanic belts in the Churchill and Slave structural provinces.

In the Kaminak-Rankin volcanic belt in the District of Keewatin seven companies explored for gold.

At the eastern end of the Kaminak-Rankin belt, *Inco Metals Ltd.* prospected gold showings at the southern end of the Pork Peninsula (51), *Silver Chief Minerals Ltd.* prospected its claims in the Maze Lake-Pistol Bay area (51) and *Westward Resources Ltd.* staked and prospected showings west and north of Rankin Inlet (50).

Esso Minerals Ltd. carried out a program of prospecting, geophysical surveying and packsack drilling of precious and base metal showings near Kaminak Lake (52), Yandle Lake (53), Carnecksluck Lake (54) and north of Cullaton Lake (h).

Kognak Gold Explorations Ltd. prospected and completed a magnetometer survey over part of a prospecting permit acquired by the company east of Otter Lake (55).

Suncor Inc. carried out geochemical, geophysical and geological surveys over anomalies detected during 1981 surveys on claims and prospecting permits in the Fitzpatrick-Watterson lakes area (56) and on claims east and west of Cullaton Lake (h).

North of Griffin Lake (57), *Noranda Exploration Company Ltd.* prospected and conducted geophysical surveys over volcanic ultramafic and sedimentary assemblages.

Six companies explored for gold in veins and shear zones in the volcanic belts of the Slave Structural Province.

Giant Yellowknife Mines Ltd. continued to evaluate its Salmita gold deposit at Matthews Lake (58), 260 km northeast of Yellowknife. Company crews extended the decline, drove two drifts, mapped and sampled the workings. Eighteen drill holes totalling 2 076m were drilled to test the downward extensions of the gold-bearing vein.

Noranda Exploration Company Ltd. mapped and prospected the RUSS-1 claim, near the Discovery Mine (60) a former gold producer, the WIJ, INN and EDI claims (59), and three prospecting permits near Uist Lake (63). The company conducted geophysical surveys on properties in the Russell-Slemon lakes area (62) and on the FAT claims in the Courageous Lake area (58).

In the Gordon Lake area (61), *Black Ridge Gold Ltd.* drilled 20 holes on the MQ-001 claim, *Kengate Resources Ltd.* drilled 4 holes on the JIM (F0614) claim and *Burnt Island Gold Ltd.* drilled 21 holes on the GOO claims.

Cominco Ltd. explored a number of properties in the High Lake area (44).

In the Nahanni area, two prospectors, *Linberg and Sibbeston,* explored for placer gold and silver along the South Nahanni (64) and Broken Skull (64) rivers.

Further north, *Canadian Nickel Company Ltd.* (65) staked several arsenic anomalies which were shown in Geological Survey of Canada Open File 868. The company is using arsenic as a geochemical pathfinder for gold mineralization.

Silver

Exploration for silver deposits was confined to the Camsell River area (d) where *Terra Mines Ltd.* explored several silver veins with surface and underground drilling programs.

Tungsten

Exploration for tungsten mineralization was conducted along the Yukon border from the community of Tungsten to the Macmillan Pass area.

Canada Tungsten Mining Corp. drilled three holes on its Cantung tungsten mine lease (a) to confirm the extension of ore-bearing skarn under the Flat River valley. A few kilometers to the north the company mapped parts of the Baker tungsten prospect (a).

Union Carbide Canada Ltd. had three diamond drills at work on its LENED property (66). Detailed mapping and stratigraphic studies were carried out on the tungsten deposit.

In the Macmillan Pass area, *Amax of Canada Ltd.* carried out a general survey program for infrastructure on its Mactung tungsten deposit (67). The company plans to bring the deposit into production, possibly in 1986 or 1987.

The release in August, 1982 of Geological Survey of Canada Open File 868 created a small staking rush when *Cominco Ltd., Union Carbide Canada Ltd., Amax of Canada Ltd.* and *Aberford Resources Ltd.* staked claims on tungsten anomalies in map area 105-I (48).

Tantalum-Columbium

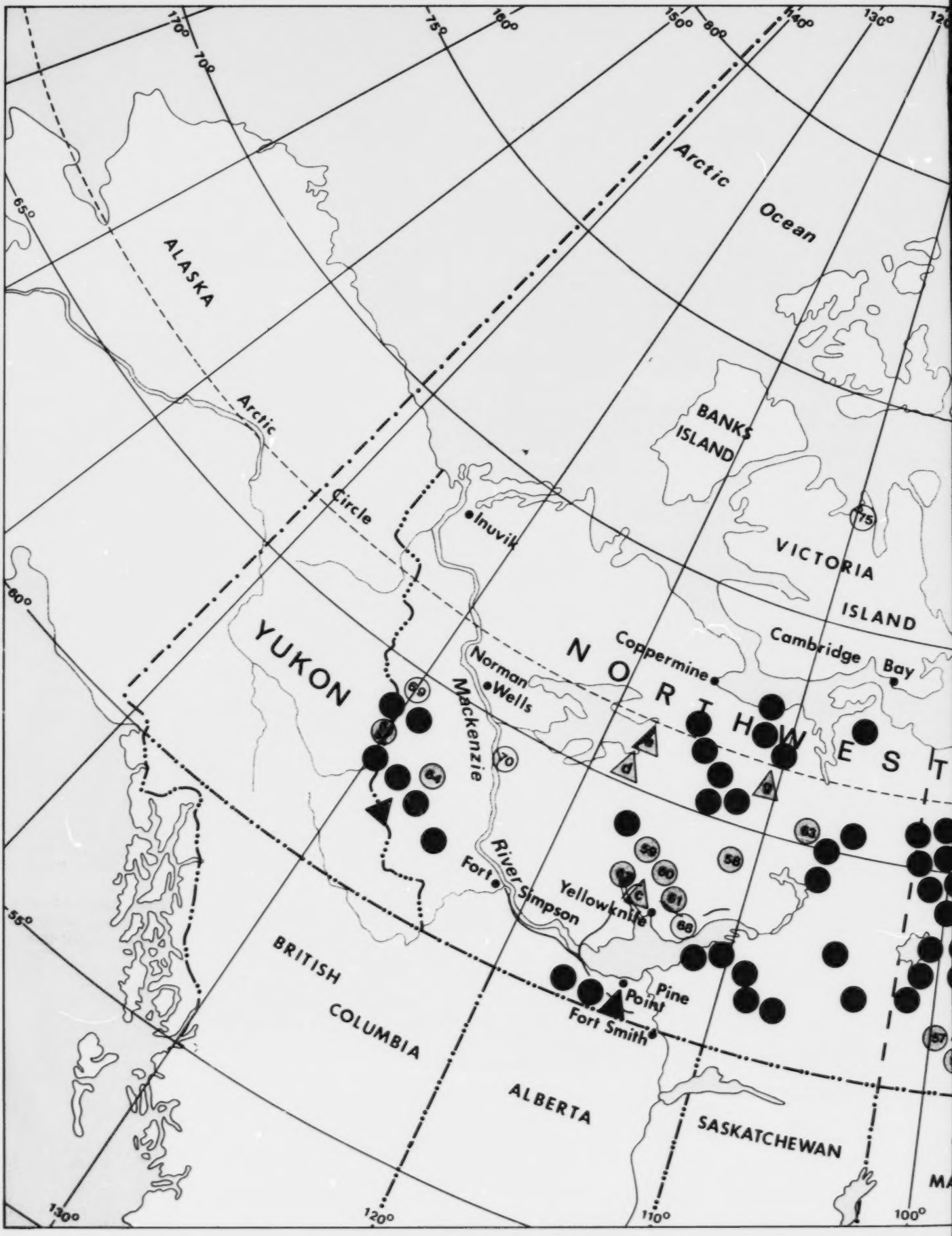
Highwood Resources Ltd. and *Placer Development Ltd.* bulk sampled the central part of the Blachford Lake Complex (68) for metallurgical testing of tantalum-columbium (niobium) — rare earth mineralization.

M. Senkiw prospected the outer margin of the Blachford Lake Complex near Grace Lake (68).

Diamonds

Diamond exploration during 1982 expanded in the Nahanni region as *CF Mineral Research Ltd.* sampled the Mountain Diatreme (69) and its permits (70) in the Franklin Mountains for diamond-bearing kimberlite.

Diapros Ltd. contined its search for kimberlitic pipes and dikes on its permit northeast of the Blackwater River (70) in the Franklin Mountains.


ALASKA
Arctic Ocean
Arctic Circle
BANKS ISLAND
VICTORIA ISLAND
Inuvik
Coppermine
Cambridge Bay
YUKON
NORTHWEST
Norman Wells
Mackenzie River
Fort Simpson
Yellowknife
Pine Point
Fort Smith
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
70
75
80
65
60
55
130°
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110°
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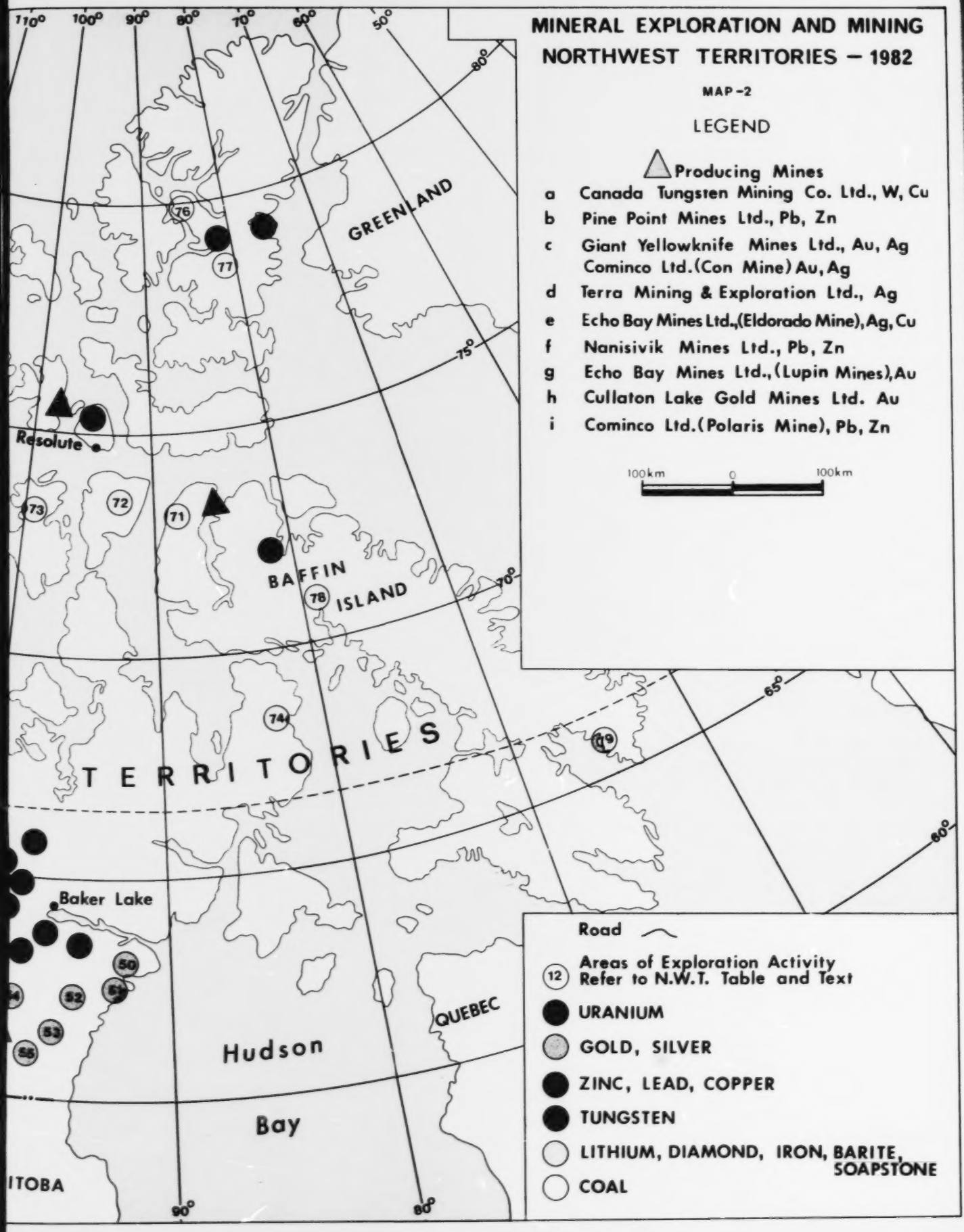

MINERAL EXPLORATION AND MINING
NORTHWEST TERRITORIES – 1982
MAP-2
LEGEND
Producing Mines
a Canada Tungsten Mining Co. Ltd., W, Cu
b Pine Point Mines Ltd., Pb, Zn
c Giant Yellowknife Mines Ltd., Au, Ag
Cominco Ltd.(Con Mine) Au, Ag
d Terra Mining & Exploration Ltd., Ag
e Echo Bay Mines Ltd.,(Eldorado Mine), Ag, Cu
f Nanisivik Mines Ltd., Pb, Zn
g Echo Bay Mines Ltd.,(Lupin Mines), Au
h Cullaton Lake Gold Mines Ltd. Au
i Cominco Ltd.(Polaris Mine), Pb, Zn
100km 0 100km
GREENLAND
Resolute
BAFFIN ISLAND
TERRITORIES
Baker Lake
QUEBEC
Hudson Bay
ITOBA
Road
Areas of Exploration Activity
Refer to N.W.T. Table and Text
URANIUM
GOLD, SILVER
ZINC, LEAD, COPPER
TUNGSTEN
LITHIUM, DIAMOND, IRON, BARITE, SOAPSTONE
COAL

Diapros Ltd. returned to the southern Arctic Islands in its search for diamond-bearing kimberlite on the Brodeur Peninsula of Baffin Island (71), Somerset Island (72) and Prince of Wales Island (73). In 1973 and 1974 Diapros reported the recovery of small diamonds from kimberlite intrusions on Somerset Island.

Iron

Borealis Exploration Ltd. completed a program of 3 440m of diamond drilling, detailed magnetometer and geological surveys, trenching and bulk sampling on its iron property at Roche Bay on the Melville Peninsula (74).

Prospector *W. Reid* staked and prospected a hematite showing on Victoria Island (75).

Coal

Petro-Canada Ltd. explored the coal-bearing formations in the Slidre Fiord area (76) southeast of Eureka and the Bay Fiord — Strathcona Fiord area (77) further to the south.

Soapstone

Dr. W. Gibbins, the Arctic Island District Geologist, examined ultramafic rocks east of Mary River (78) and southeast of Pangnirtung (79) as possible sources of carving stone.

Yukon Territory

Mineral Production and Development

Mineral production in the Yukon Territory during the calendar year 1982 was valued at $168 million compared to $268 million in 1981 (see Table 9). The value of mineral production declined 37 percent from 1981. At year-end, all of the major lode mines in the Yukon were shut down in the wake of depressed metal markets. Cyprus Anvil Mining Corporation and United Keno Hill Mines Ltd. closed in mid-year and Whitehorse Copper Mines Ltd. closed permanently at year-end because of ore reserve depletion. Cyprus Anvil's Tantalus Butte coal mine did not open during 1982 because Cyprus Anvil had a sufficient stockpile of thermal coal at its Faro mill to dry its lead-zinc concentrate output. The number of Yukon placer gold operations also declined because of low gold prices during the first half of 1982. Yukon Barite Co. Ltd. commenced seasonal production of barite in mid-October at its Samovar Mine near Macmillian Pass on the North Canol Road but closed operations in December, 1982.

Prospects for 1983 hinge largely on whether Cyprus Anvil will re-open its lead-zinc mine near Faro. The mine is the largest private sector employer in the Territory. Since mid-1982, the Department of Indian Affairs and Northern Development and the company have been co-operating in the development of action plan proposals to get the mine back into production. Discussions were continuing at year-end.

Table 4
Estimated Mineral Production
Yukon Territory, 1981-1982

Company and Commodity Mined	1982 t	1982 kg	1981 t	1981 kg
Cyprus Anvil Mining Corp.				
Faro Mine				
lead	33 905		56 111	
zinc	59 392		78 876	
silver		28 017		52 502
gold		62.8		151
Tantalus Butte				
coal	—		20 860	
United Keno Hill Mines Ltd.				
silver		37 284		36 020
lead	946		1 018	
zinc	119		—	
Whitehorse Copper Mines Ltd.				
copper	7 236		9 068	
silver		4 716		6 045
gold		342		489
Yukon Barite Company Ltd.				
barite	10 000		—	

Source - Department of Indian Affairs and Northern Development.

Mines

Mineral production came from four mining establishments: Cyprus Anvil's Faro Mine (lead, zinc, silver, gold), United Keno Hill Mines (silver, lead, zinc), Whitehorse Copper Mine (copper, gold, silver) and Yukon Barite's Samovar Mine (barite).

The Yukon accounted for 12.4 percent of the lead, 5.7 percent of the zinc, 4.6 percent of the gold, 5.8 percent of the silver and 1.2 percent of the copper produced in Canada during 1982. The Yukon accounted for 2.4 percent of the value of Canadian metallic mineral production.

The operating mines employed an average of 1 030 persons during the first half of 1982. This employment figure declined drastically in the second half of the year after the mines of Cyprus Anvil and United Keno Hill closed down. Whitehorse Copper closed on Dec. 31, 1982. At the end of 1982, only 173 persons were employed at the mines.

The Yukon placer gold mining industry provided seasonal employment for 650 persons.

Cyprus Anvil Mining Corporation - Faro Mine

Cyprus Anvil Mining Corporation closed its Faro Mine (b) on June 4, 1982 when low world lead and zinc prices made its operation uneconomic. Previously, in March, the company had reduced its work-force by 95 persons to cut operating costs. Exploration was conducted on Cyprus Anvil's Grum and Vangorda deposits with completion of 5 334m of drilling. These two deposits could be brought into production in the late 1980's or 1990's if metal prices increase and northern lead-zinc mining operations again become viable. The company has negotiated a new two-year contract with its unionized employees which includes measures to significantly increase productivity. At year end, 125 employees were employed on staff.

Type:	Open-pit
Location:	209 km northwest of Whitehorse
Product:	Zinc, lead, silver
Mill Rate:	10 328 t per day
Tonnes Milled:	1 635 049
Reserves:	30.9 million t in Faro deposit (Dec. 31, 1981)
Reserve Grade:	3% lead, 4.6% zinc, 38.7 g silver per t
Employees:	620 (Average for Jan-June)

Cyprus Anvil Mining Corporation - Tantalus Butte Mine

The Tantalus Butte Coal Division (c) of Cyprus Anvil Mining Corporation did not operate during 1982 as there was a large stockpile of thermal coal at the Faro base metal mine for drying the lead-zinc concentrates. Cyprus Anvil plans to develop a new coal mine near Ross River to replace the Tantalus Butte Mine, which only has reserves for one year's production remaining.

Type:	Open-pit
Location:	Carmacks
Product:	Sub-bituminous coal
Tonnes Produced:	Nil
Reserves:	27 000 t (Dec. 31, 1981)
Employees:	Nil

United Keno Hill Mines Limited

United Keno Hill Mines Ltd. suspended operations at its Keno Hill (d) properties on July 13. The company had previously attempted to cut operating costs by closing down four open pit mines with consequent reduction of its 283 person work force. Mining efforts were concentrated on the Elsa, Husky and Ruby mines, the three richest silver mines in the mining camp. Less than 10 percent of the exploration program planned for the area was completed. The property is being maintained on a standby basis by 23 employees, pending improvement in silver prices.

Type:	Underground and open-pit
Location:	50 km northeast of Mayo
Product:	Silver, lead, zinc
Mill Rate:	377 t per day
Tonnes Milled:	50 340
Reserves:	189 874 t (Dec. 31, 1982)
Reserve Grade:	885 g silver per t, 3.7% lead
Employees:	232 (Average for Jan-June)

Whitehorse Copper Mines Limited

Whitehorse Copper Mines Ltd. (a) operated for the whole year. The company attempted to reduce operating costs by increasing the number of tonnes milled per day to 2 400 from the average of 2 025 tpd in 1981, as the average ore grade decreased from 1.42 percent copper in 1981 to 1.2 percent copper in 1982. Continued exploration in the Whitehorse Copper Belt which included 2 606m of drilling on the North Star property (a) located only scattered low-grade copper mineralization. The mine closed on December 31, 1982. By early January, 1983 only 25 persons were employed at the mine site for dismantling and rehabilitation activities.

Type:	Underground
Location:	11 km south of Whitehorse
Product:	Copper, gold, silver
Mill Rate:	2 400 t per day
Tonnes Milled:	814 320
Ore Reserves:	Nil
Employees:	161

Yukon Barite Company Limited

The Yukon Barite Company Limited commenced mining barite at the Samovar Mine (e) on the TEA property in the Macmillan Pass area in mid-October. Mining ceased in early December. Approximately 10 000 t of crude barite was mined and trucked to Ross River where a processing mill was under construction in early 1983. The company has contracts to supply ground barite to Beaufort Sea petroleum operators over a two year period. Shipments which were expected to begin in early 1983 may be delayed pending completion of mill construction. The ground barite will be bulk packed into two-tonne boxes for shipment by truck to Tuktoyaktuk. The company hopes to be able to negotiate additional contracts once it has demonstrated its ability to deliver the product.

Type:	Open-pit
Location:	193 km northeast of Ross River
Product:	Barite
Mill Rate:	Unknown
Tonnes Milled:	Nil
Reserves:	250 000 t
Reserve Grade:	Specific gravity 4.24
Employees:	7

Outlook

Prospects for 1983 hinge mainly on whether mines currently closed in the Yukon will re-open. The current outlook for re-opening of both Cyprus Anvil's Faro Mine and United Keno's mining operations is uncertain as profitable operation in the future will depend on significant recovery in metal prices, price stability and cost cutting measures.

Development work was conducted on a few properties during the year. Hudson Bay Mining and Smelting continued its underground exploration program on its Tom (4) lead-zinc-silver property but this work was terminated in March because of low metal prices and the underground workings were allowed to flood.

Arctic Red Resources Corp. carried out underground development work on its Laforma gold property (52) west of Carmacks. The 355m of drilling indicated that gold values are increasing with depth.

Nearby and to the east on Tinta Hill (53), Silver Tusk Mines Ltd. and Panther Mines Ltd. carried out underground exploration on their gold-silver-zinc-lead-copper property. In September, they announced their intention to place the property into production at a rate of 91 to 136 t per day if project financing is secured. The tonnage indicated by underground work would allow for a mine life of two years.

Among the better mineral deposits which could be classified as potential medium and long-term producers in the Yukon are:

- the $171 million Mactung Mine development of Amax of Canada Ltd., a tungsten deposit, near Macmillan Pass on the Yukon-Northwest Territories border. While most of the deposit lies within the Yukon Territory, the mill and other surface facilities will be located largely in the Northwest Territories. In January, 1983 the company announced that the start-up date for initial production is late 1986 or early 1987.
- Hudson Bay Mining and Smelting Co. Ltd.'s Tom lead-zinc-silver deposit and Aberford Resources Ltd.'s Jason lead-zinc-silver deposit, both in the Macmillan Pass area.
- the Howards Pass lead-zinc property of Placer Development Ltd. and Cygnus Mines Ltd. near the Yukon-Northwest Territories border.
- Cyprus Anvil Mining Corp.'s Grum, Vangorda and DY lead-zinc-silver deposits in the Anvil District near Faro. The company's long term expansion plan to bring the Grum and Vangorda deposits into production by the late 1980's has been put on the shelf pending resolution of the future of the Faro mine.

Placer Mining

Yukon placer gold production was estimated at 2 290 kg (73 626 oz.) in 1982, or approximately 80 percent of the 1981 production of 2 885 kg (92 756 oz.).

The decrease in the price of gold in 1982 caused a decline in the number and size of mining operations. The amount of gold produced and the amount of staking and evaluation activities also declined.

While the price of gold cannot be forecast with any certainty, prospects for 1983 are buoyant, as the world price of gold has increased. On January 31, 1983 the market price of gold was $617 an ounce compared to the low of $385 an ounce on June 21, 1982. The average mining costs of Yukon placer gold was estimated in 1982 at approximately $345 per ounce (31.1 g) of gold produced.

Placer mining operations during 1982 provided approximately 270 man-years of work for 650 seasonally employed persons. The Yukon placer gold production comprises 3.7 percent of the total 1982 Canadian gold production.

Mining was concentrated in the Sixty Mile (80), Klondike (81), Clear Creek, (83), Mayo (44), Burwash (84) and Carmacks (52) regions.

The Yukon placer mining guidelines, drafted by the Department of Indian Affairs and Northern Development, Department of Fisheries and Oceans and Department of Environment, propose a multiple resource management approach to placer mining in the Yukon Territory. The guidelines prescribe water quality standards for waste water eminating from placer mining operations.

A public review of the proposed draft guidelines will be held during 1983 in a number of Yukon communities.

Mineral Exploration

Mineral exploration in the Yukon declined drastically during 1982 with exploration expenditures estimated at $22 million, down from the $50 spent in 1981. The year was characterized by low levels of on-property work, fewer drill programs and the staking of fewer add-on claims and new claim groups.

The outlook for exploration expenditure in 1983 is that it will remain at a depressed level until metal prices increase significantly. The British Columbia and Yukon Chamber of Mines has projected an exploration expenditure for 1983 of $11 million based on a survey of its members.

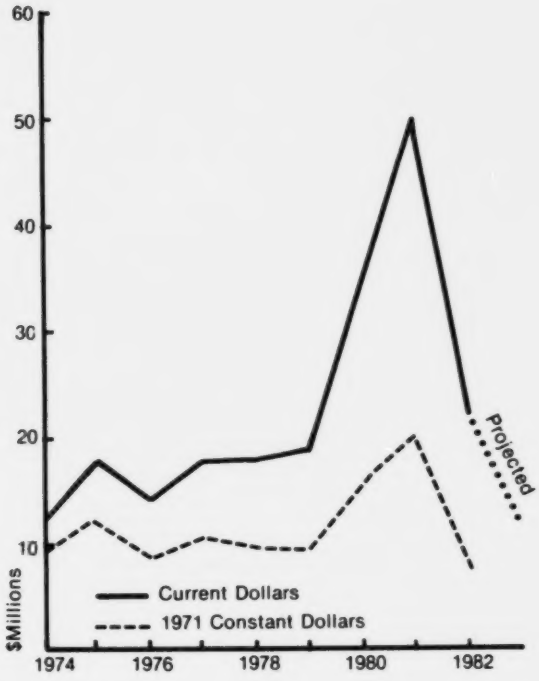
Mineral claims staked and recorded during the year with comparative figures for 1981 are:

Table 5
Claims Recorded in Yukon

District	1982 Claims Recorded	1981 Claims Recorded
Whitehorse	981	3 586
Dawson	538	1 068
Mayo	408	3 208
Watson Lake	1 852	3 430
Total	3 779	11 292

In addition, 3 966 placer claims and 297 placer leases were registered in 1982.

Figure 5
Mineral Exploration Expenditures
Yukon Territory



During the year 1982, 116 properties were explored. Of these 54 were base metal properties including 43 lead-zinc properties, 25 were precious metal properties, 14 were tungsten properties and the remainder were explored for various other mineral commodities.

Base metal deposits, particularly shale-hosted sedimentary exhalative deposits were actively explored in the Macmillan Pass area, the Rancheria and Earn Lake areas west of Watson Lake, the Frances Lake area and in the Anvil District. Precious metal exploration was widespread with major areas west of Carmacks and south of Whitehorse. Exploration for tungsten, tin and molybdenum was widespread with a major concentration north of the Rancheria area, west of Watson Lake. Placer gold exploration activity decreased during 1982 but a notable discovery of an auriferous deposit of White Channel type gravel was made on Paradise Hill, Hunker Creek (81) approximately 1 000m from any previously worked deposits of the same type.

A summary of exploration activities is given in Table 6, and locations of these exploration activities are shown by numbers on Map 1.

Lead-Zinc-Silver

Over a dozen companies explored for lead-zinc deposits in the Yukon during 1982. Most were active in the Selwyn Basin in the eastern Yukon with some activity taking place in the Rancheria area, west of Watson Lake, and in the Ogilvie Mountains, northeast of Dawson.

In the western Ogilvie Mountains, *Mattagami Lake Exploration Ltd.* carried out geological mapping and geochemical surveys on the WENDY (1) and KZ (2) claims. Ten small trenches were blasted on the KZ claims.

Archer, Cathro and Associates Ltd. on behalf of *ZX Joint Venture* carried out reconnaissance scale soil and rock geochemical surveys and cleaned out old trenches on the TUDL (3) claims in the Keno Hill area.

The main area of lead-zinc exploration is in the Macmillan Pass region where shale is the host rock for lead-zinc-barite deposits. *Hudson Bay Mining and Smelting Ltd.* proceeded with additional underground work at its TOM (4) deposit until March when underground work was terminated and the workings were allowed to flood. Minor geological mapping and a drill core logging program were carried out during the summer.

On the nearby JASON deposit (5), a few kilometres to the west, *Aberford Resources Ltd.*, the major partner in *Ogilvie Joint Venture,* drilled 2 850m in five holes on the south zone where four mineralized intersections were encountered.

Cominco Ltd. carried out geological mapping, geochemical and geophysical surveys, trenching and diamond drilling (four holes) on the NIDD claims (5) which adjoin the JASON property to the north. *Cominco* optioned the HASTEN, BASIN and FETCH claims (5), located south of the JASON, from *Welcome North Mines Ltd.* and carried out mapping and geochemical surveys. Mapping indicated that the mineralized horizon found on the JASON may extend onto these claims.

In the same area, *Amax Inc.* carried out a soil geochemistry survey on the FAN claims (5).

West of Macmillan Pass *Hudson Bay Exploration and Development Ltd.* conducted detailed geological mapping and soil and rock geochemistry programs on the FAL claims (6), on the BAR claims (77), on the MAC claims (77), and on the SUN claims (6). The BAR, MAC and SUN claim groups cover bedded barite showings.

In the Dromedary Mountain area (7), *Anaconda Canada Exploration Ltd.* carried out a program of geological mapping, soil geochemistry and geophysical surveys on the ACE claims and nearby CLAIRE, BUSH and EARN claims. To the west, *Anaconda* carried out similar surveys on its KAL and BUM claims (8). The company conducted minor geological mapping and soil geochemical surveys on the RABBIT claims (9).

Kidd Creek Mines Ltd. carried out geological mapping, geochemical and geophysical surveys on its SUE claims (9).

Northwest of Faro, *Noranda Exploration Co. Ltd.* optioned the LADY DI claims (10) from *Welcome North Mines Ltd.* and then conducted a geophysical survey.

Exploration in the Anvil camp was concentrated on the Grum deposit (11) where *Cyprus Anvil Mining Corp.* drilled 24 diamond drill holes totalling 5 335m. Further east, the company carried out minor property work on the TENAS claims (12).

Southwest of Ross River, *Amax Exploration Inc.* and *Procan Exploration Company* conducted geological mapping and soil geochemistry on their GREW claims (13).

Southeast of Ross River, and north of the Pelly River, *Hudson Bay Exploration and Development Ltd.* carried out a program of geological mapping and geophysical surveys on the RAB claims (14). A little further east *Hudson Bay* drilled seven holes on the SHALE, RENO and EAGLE claims (14) in the Pelly Banks area.

Placer Development Ltd. and *Cygnus Mines Ltd.* carried out an economic analysis of their Howards Pass property (15) and concluded that mining is not economically viable in the current economic environment. *Placer* announced that the XY deposit, which is predominately in the Northwest Territories, has drill indicated reserves of 59 million t of 2.1 percent lead and 5.4 percent zinc including 8.2 million t of 5.5 percent lead and 10.6 percent zinc. The ANNIV deposit, which is wholly within the Yukon, has drill indicated reserves of 61 million t of 2.1 percent lead and 5.4 percent zinc. The Howards Pass property has inferred reserves in excess of 360 million t of 7 percent combined lead-zinc.

In the Francis Lake area (16), *Cominco Ltd.* conducted geological mapping, geochemical and geophysical surveys on the FIN claims.

Chevron Standard Ltd. carried out a program of geological mapping and soil chemistry surveys on its BAR claims (17), 45 km north of Teslin.

East of Teslin, *BRX Mining and Petroleum Ltd.* carried out property work on the MEISTER claims (18).

On the large MIDWAY property (18), which spans the Yukon-BC border, *Regional Resources Ltd.* and its partners *Amax of Canada Ltd.* and *Procan Exploration Company* carried out a large drilling program on their lead-zinc-silver deposit in British Columbia. Geophysical surveys on the claims in the Yukon located several conductors which are coincident with lead-zinc-silver geochemical anomalies located in 1981.

North of the MIDWAY claims, *Regional Resources Ltd.* carried out a program of geological mapping, soil geochemical sampling and trenching on the MR claims (19) and on the LOGAN claims (20).

North of Watson Lake, *Kerr Addison Mines Ltd.* evaluated the GE claims (21) by a program of geological, geochemical and geophysical surveys.

Archer, Cathro and Associates Ltd. on behalf of the *ZX Joint Venture*, examined three claim groups northeast of Watson Lake. The company conducted geological mapping and stream sediment geochemical surveys on the AUP claims (22), geological mapping and soil, rock and stream sediment geochemical surveys on the CUZ claims (22) and soil and rock geochemical surveys on the QUIVER claims (22).

East of Watson Lake, *Sulpetro Minerals Ltd.* geologically mapped and carried out a soil geochemical survey on its JONI claims (23). In the same area, *Serem Ltd.* conducted geological mapping, prospecting and stream sediment geochemical programs on the LOOTZ claims (23) and *Archer, Cathro and Associates Ltd.* on behalf of the *ZX Joint Venture*, carried out a detailed geochemical program on the QUO claims (24).

Further east, *Archer, Cathro and Associates Ltd.*, on behalf of *Kidd Creek Mines Ltd.* carried out reconnaissance scale geological mapping and geochemical surveys on the TRANZ claims (25) and on the MARS and RUSH claims (26).

Tungsten

Declining tungsten prices resulted in a decline in tungsten exploration programs in 1982 compared to 1981.

Canada Tungsten Mining Corp. continued working on its Dublin Gulch project (27) north of Mayo by conducting geological mapping, soil geochemical and geophysical surveys, trenching and 750.6m of drilling on the ALEC and MAR claims.

West of Mayo, *Canada Tungsten Mining Corp.* carried out a program of geological mapping and soil and stream sediment geochemical surveys on the CC claims (28) in the Clear Creek area.

Southeast of Mayo on Kalzas Mountain, *Union Carbide Canada Ltd.* explored tungsten and tin mineralization on the WOLF, DAVID, PAT and BLACKIE claims (30) with geological mapping, a rock geochemical survey and overburden and bedrock trenching. Nearby on Clarke Peak, *Amax Exploration Inc.* prospected and geologically mapped its DOPE claims (30).

Amax Exploration Inc. carried out geological mapping and stream sediment geochemical surveys on its DRILL claims (29) near Ethel Lake, south of Mayo.

Northwest of Dawson, *Noranda Exploration Co. Ltd.* drilled 719.4m on its RAIL claims (31).

Hudson Bay Exploration and Development Co. Ltd. conducted geological and geochemical surveys on its SIM claims (32), west of Macmillan Pass.

West of Ross River, *Hudson Bay Exploration and Development Co. Ltd.* completed minor geological mapping on its CAB claims (33) and geological mapping, geophysical surveys and trenching on the nearby BIG and SAM claims (33).

Hudson Bay Exploration and Development Co. Ltd. also worked on the COOT claims (34) south of Aishihik Lake where geochemical and geophysical surveys and trenching were carried out.

Serem Ltd. conducted a program of prospecting, geochemical surveys and geological mapping of its SOURCE claims (35) north of Rancheria.

North of Watson Lake, *Hudson Bay Exploration and Development Co. Ltd.* carried out a soil geochemical survey over the TOD claims (36).

Molybdenum

In spite of depressed molybdenum markets, the level of molybdenum exploration continued at the same level as in 1981.

Amoco Canada Petroleum Co. Ltd. and *Tintina Mines Ltd.* drilled over 4 000m in four holes on the BUG claims (37) on the Red Mountain porphyry deposit.

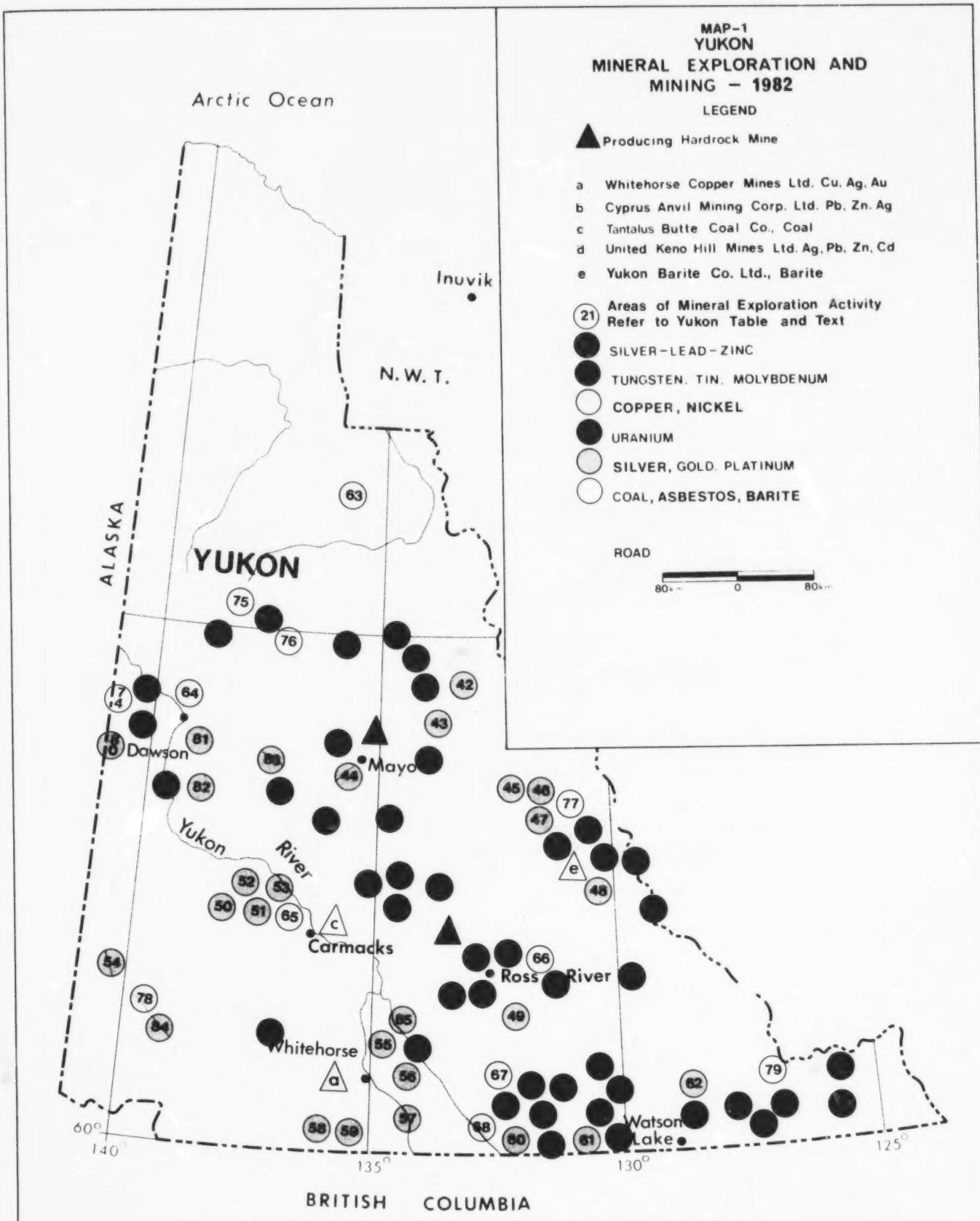
Northwest of Dawson, *Cominco Ltd.* drilled its PLUTO claims (38).

Tin

The level of exploration for tin in 1982 was almost the same as in 1981. Exploration for tin is centered in the area north and northeast of Teslin.

The *DC Syndicate* drilled 731.7m on its JC claims (39) and 153.9m on the MUN claims (40). The company carried out geological mapping and magnetometer surveys on the MUN and ROAD claims (40).

To the north and northeast of Teslin, the *DC Syndicate* mapped and conducted geochemical and geophysical surveys on its FF claims (41). Nearby *J.C. Stephen Explorations Ltd.*, acting as manager for the *DC Syndicate* mapped and carried out geochemical and geophysical surveys on the ABBA claims (41) and mapping and geochemical surveys on the JAR claims (39).


MAP-1
YUKON
MINERAL EXPLORATION AND MINING – 1982
LEGEND
Producing Hardrock Mine
a Whitehorse Copper Mines Ltd. Cu, Ag, Au
b Cyprus Anvil Mining Corp. Ltd. Pb, Zn, Ag
c Tantalus Butte Coal Co., Coal
d United Keno Hill Mines Ltd. Ag, Pb, Zn, Cd
e Yukon Barite Co. Ltd., Barite
21 Areas of Mineral Exploration Activity Refer to Yukon Table and Text
SILVER-LEAD-ZINC
TUNGSTEN, TIN, MOLYBDENUM
COPPER, NICKEL
URANIUM
SILVER, GOLD, PLATINUM
COAL, ASBESTOS, BARITE
ROAD
80 km
0
80 km
Arctic Ocean
Inuvik
N.W.T.
ALASKA
YUKON
Dawson
Mayo
Yukon River
Carmacks
Ross River
Whitehorse
Watson Lake
60°
140°
135°
130°
125°
BRITISH COLUMBIA

Gold-Silver

Exploration for gold and silver was at the same level in 1982 as in 1981 with lode exploration concentrated in the Dawson, Mayo, Carmacks, Macmillan Pass, Whitehorse and Rancheria areas.

In the Wernecke Mountains near Delores Creek, *Texaco Canada Resources Ltd.* conducted property work on its IOTA claims (42).

Prism Resources Ltd. prospected and trenched its VERA claims (43) on Rusty Mountain, north of Mayo. Five kilometres south of the Vera deposit the company discovered a new vein.

Canada Tungsten Mining Corp. carried out an airborne electromagnetic survey and drilled 15 overburden holes on its Keno Project (44) near Keno Hill.

In the eastern Selwyn Basin northwest of Macmillan Pass, *Union Carbide Canada Ltd.* geologically mapped the ETZEL claims (45), the OLD CABIN claims (46) and the EMMY claims (47).

AGIP Canada Ltd. geologically mapped and conducted geochemical and geophysical surveys on the BRICK and NEVE claims (47).

Southwest of Macmillan Pass, *Hudson Bay Exploration and Development Co. Ltd.* carried out a program of geological mapping and rock geochemical sampling on the ROSS claims (48).

South of Ross River, *Iona Industries Inc.* conducted a geological mapping program on its KETZA-KEY property (49).

West of Carmacks, *Archer, Cathro and Associates Ltd.* drilled 637m on the LILYPAD claims (50) and conducted geological mapping and geochemical surveys on the NUCLEUS and NITRO claims (51).

On Freegold Mountain, *Arctic Red Resources Ltd.* carried out underground mine rehabilitation and drilling on its Laforma deposit (52). Further to the east on Tinta Hill (53), *Silver Tusk Mines Ltd.* and *Panther Mines Ltd.* conducted underground exploration. The companies announced in September their decision to place the property into production.

Northwest of Burwash Landing, *Archer, Cathro and Associates Ltd.* conducted geological mapping and geochemical surveys on its NARNIA claims (54).

Canadian Nickel Company Ltd. investigated the TES claims north of Whitehorse (55).

Northeast of Whitehorse, *AGIP Canada Ltd.* carried out geological mapping and geochemical programs on its GAMMON claims (56).

On Jubilee Mountain (57), southeast of Whitehorse, *Golden Slipper Resources Inc.* and *Logan Mines Ltd.* prospected, trenched and drilled five holes on their property.

Canadian Nickel Company Ltd. conducted geological mapping and rock geochemical surveys on its RAM claims (58) near Primrose Lake.

On Mount Skukum, *AGIP Canada Ltd.* carried out a program of geological mapping, geochemical and geophysical surveys and 3 325.6m of drilling in 29 holes on the KUKU, CHIEF and WOOF claims (59). Nearby the company staked the GLENLIVET claims. Also nearby, *Archer, Cathro and Associates Ltd.* conducted geological mapping and geochemical surveys on its NAIAD claims (59).

A.M.P. Exploration Ltd. and *Pure Silver Mines Ltd.* rebuilt a new access road, installed a new camp and sampled the vein on its LOGJAM property (60).

Further east of Rancheria, *Klondike Silver Mines Ltd.* explored and trenched the veins on its ANT claims (61).

North of Watson Lake, *Cima Resources Ltd.* drilled three holes on its Mt. Hundere property (62).

Copper

Despite low prices in the world copper markets, copper exploration in 1982 remained active.

Mattagami Lake Exploration Ltd. conducted geological mapping, geochemical and geophysical surveys and blasted 16 pits on its TOUCHE claims (63) in the northern Richardson Mountains.

Further south and northeast of Dawson, *Mattagami Lake Exploration Ltd.* geologically mapped the MARN, MELA and DALE claims (64).

Northwest of Carmacks, *United Keno Hill Mines Ltd.* explored the STU, HI, FIL and NOON claims (65) with 48 918m^3 of bulldozer trenching.

East of Ross River, *SMD Mining Company Ltd.* carried out a program of geological mapping, geochemical and geophysical surveys on its AM claims (66).

In the Whitehorse Copper Belt, *Whitehorse Copper Mines Ltd.* drilled 2 606.7m on the NORTH STAR property (a).

East of Whitehorse and north of Teslin, the *DC Syndicate* carried out a program of geological mapping, geological and geophysical surveys on its ORK claims (67).

Northeast of Teslin, *J.C. Stephen Explorations Ltd.* on behalf of the *DC Syndicate* conducted geological mapping and geochemical surveys on the CAL claims (68).

Uranium

Uranium exploration in the Yukon in 1982 remained at the same level as in 1981 despite world oversupply of uranium and downward pressure on prices.

Archer, Cathro and Associates Ltd. worked on several claim groups in the Wernecke Mountains on behalf of the *Wernecke Joint Venture. Archer, Cathro* carried out geological and geochemical surveys on the PIKE (70), DEMON (70) and APE (71) claims. In addition, a geophysical survey was conducted on the PIKE claims, geological mapping only on the FLAT claims (69) and 1 044.5m of drilling in eight holes on the IGOR claims (72).

South of Dawson (73), *Eldorado Nuclear Ltd.* conducted geological mapping and geochemical surveys on its claim group.

Northwest of Macmillan Pass, *AGIP Canada Ltd.* carried out a program of geological mapping, geochemical surveys and trenching on its ICE, FIRE and SUN claims (46).

Asbestos

Archer, Cathro and Associates Ltd., on behalf of *Brinco Ltd.* and *Exploram Minerals Ltd.*, explored the TURK claims (74) near Easter Creek with two bulldozer trenches. The company also explored the TATER claims (74) on the northeastern side of Clinton Creek with two bulldozer trenches. The properties are near the former Clinton Creek asbestos mine.

Barite

Mattagami Lake Exploration Ltd. mapped in detail the barite veins on the HEIDI (76) and BANG-ON (75) claims.

In the Macmillan Pass area, *Hudson Bay Exploration and Development Company Ltd.* explored the BAR and MAC claim groups (77) with a program of geological mapping and geochemical surveys.

Nickel

Halferdahl and Associates Ltd., on behalf of the *Bur Syndicate,* conducted a geochemical survey and drilled 273m in three holes on the WEN and JO claims (78), located northwest of Kluane Lake.

Coal

Sulpetro Minerals Ltd. conducted a gravity survey on its Rock River coal licences (79).

Appendix 1

Organizational Structure and Mandate

As of January 1983, the Minister and departmental officers responsible for the administration of mines and mineral resources in the Northwest Territories and the Yukon were:

Minister:	John C. Munro
Deputy Minister:	M.A.J. Lafontaine
Assistant Deputy Minister (Northern Affairs):	G.N. Faulkner
Director General, Northern Resources and Economic Planning:	R.D. Glass
Acting Director, Mining Management and Infrastructure:	Dr. J. Lazarovich
Assistant Director, Mining Administration:	J.M. Hodgkinson
Head, Mining Resources Section:	Dr. D.D. Brown
Evaluation Geologist:	T.W. Caine
Technical Information Officer:	P.T. Marion
Head, Mining Lands Section:	T.W. Dent
Head, Legislation:	P.M. Corrigan
Head, Royalties:	M.A. Fish
Administration Clerk:	N. Horton
Acting Assistant Director, Mineral Policy:	J. Fraser
Acting Assistant Director, Infrastructure:	W.G. Cleghorn

Address:

Department of Indian Affairs
and Northern Development,
Les Terrasses de la Chaudière,
OTTAWA, Ontario
K1A 0H4

Phone (Mining) (819) 997-0911

Northern Affairs Program

Yukon Region

Director General:	D. Watson
Director, Mineral Resources:	C. Ogilvie
Chief Geologist:	Dr. J.A. Morin
District Geologist:	J.G. Abbott
Placer Geologist:	S. Morrison
Staff Geologists:	P.H. Watson
	K.J. Grapes
Contract Geologists:	R.L. Debicki
	K. Watson
Regional Manager,Mineral Rights:	B.R. Baxter
Mining Recorders:	D.F. Jennings, Whitehorse
	B. Proudfoot, Dawson
	R.G. Ronaghan, Mayo
	P. McLeod, Watson Lake
Regional Mining Engineer:	C.H. Macdonald
District Mining Engineer:	N. Prasad
Mine Rescue Superintendent:	N. Mainer
Environmental Technician:	D. Cormier
Chief Claim Inspector:	G. Gilbert
Mining Claim Inspectors:	L. Olynyk
	R. Whittingham

Address:

Department of Indian Affairs
and Northern Development
200 Range Road,
WHITEHORSE, Yukon
Y1A 3V1

Phone (switchboard) (403) 668-5151

Northern Affairs Program

Northwest Territories Region

Director General:	P.H. Beaubier
Director, Minerals and Economic Analysis:	G. Patenaude
Chief Geologist:	Dr. W.A. Padgham
District Geologists:	Dr. W.A. Gibbins
	P.J. Laporte
	C.C. Lord
	J.M. Seaton
Project Geologist:	J.A. Brophy
Archive Geologist:	Vacant
Supervising Mining Recorder:	R.L. Williams
Mining Recorders:	E.D. Cook
	H.B. Mercer

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Department of Indian Affairs
and Northern Development,
P.O. Box 1500,
YELLOWKNIFE, Northwest Territories
X1A 2R3

Phone (Switchboard) (403) 920-8110

Department of Indian Affairs and Northern Development

The *Department of Indian Affairs and Northern Development* (DIAND) is responsible for the administration of all mines and mineral activities in the Yukon and Northwest Territories. DIAND, on behalf of the federal government, sets the policy and legislative framework which governs the mining industry in both territories.

Within DIAND's *Northern Affairs Program*, major functional groups which deal directly with the mining industry are the Northern Resources and Economic Planning Branch and the Northern Environment Branch at Headquarters, and the Regional Northern Affairs Program Branches in the Yukon Region and Northwest Territories Region.

The *Northern Resources and Economic Planning Branch* at Headquarters consist of three directorates: Northern Economic Planning, Oil and Gas Management and Major Projects and Mining Management and Infrastructure. This branch is accountable for the development of departmental strategies, policies, legislation, plans and programs related to northern economic development, including the development and management of non-renewable resources and northern economic infrastructure. In addition, the Branch has a headquarters function in the co-ordination of federal and territorial activities in the area of northern economic resource development and departmental policies and mechanisms to provide socio-economic development and benefits.

In late 1982, the *Northern Resources and Economic Planning Branch* underwent a major re-organization which resulted in the establishment of the *Mining Management and Infrastructure Directorate* integrating the former Mining Division, the Transportation and Communications Division, Northern Roads and Airstrips Division and Non-Renewable Resources Development Division. The *Mining Management and Infrastructure Directorate* brings the mining, infrastructure and mineral policy elements of the Northern Program together to give better co-ordination on issues related to mineral policy, mineral resources, mining industry development, mining legislation and infrastructure support.

The *Mining Management and Infrastructure Directorate* develops and administers federal northern mineral policy and legislation, assesses infrastructure requirements of existing and potential resource operations requiring roads, airstrips and other transportation modes, and administers mining and mineral rights. The Directorate consists of the Mining Administration Division, the Mineral Policy Division and the Infrastructure Division.

Mining Administration Division

The *Mining Administration Division* administers the royalty provisions of the Yukon Quartz Mining Act, Canada Mining Regulations and Territorial Coal Regulations. The Division recommends amendments to existing regulations after appropriate consultation with industry and regional offices of DIAND. The Mining Administration Division develops policies, assesses and drafts legislation related to the administration and disposition of mineral rights in the Yukon Territory and Northwest Territories. The Division advises various government agencies on current and proposed exploration and mining developments and maintains a microfiche library of assessment reports, geological reports and other mineral resource information.

Mineral Policy Division

The *Mineral Policy Division* plays a major role in developing policies and plans to promote the orderly management and development of mineral resources in the Yukon and Northwest Territories. In support of these activities, it conducts a wide range of studies and investigations of the economic, commercial, financial and economic aspects of mineral industry operations. Similar studies and investigations are also carried out to assess proposed major new mine developments in the Territories and to monitor existing operations. A major activity of the Division, at present, is the development of a northern mineral policy to guide mineral development in the Territories over the next decade. Although only the preliminary phases of policy development have been completed, the Minister has stated that he would like to address such issues as the role of mining in the northern economy, the involvement of native people, the provision of infrastructure, the creation of a favourable investment climate through the maintenance of an appropriate fiscal and regulatory regime and the establishment of an appropriate balance between people, minerals and the environment.

Infrastructure Division

The *Infrastructure Division* is responsible for policy, assessing, planning, programming and funding of infrastructure requirements in the North including roads, airstrips and other transportation modes within the general framework of northern development strategies, policies, plans and programs for northern economic development. The Division provides overall management for the Northern Roads Program. In addition, it manages the Northern Resource Roads Program under which the Department enters cost sharing agreements with industry for the construction of initial and permanent access roads.

Regional Offices - Yukon and Northwest Territories

The Yukon Region Branch and Northwest Territories Region Branch of the Northern Affairs Program are major functional groups which, under the direction of regional Directors General, administer the mandate of the Program within the respective Territories. Offices are located at Whitehorse, Y.T. and Yellowknife, N.W.T.

The Regional Branches have the following subunits: Mining Lands Section, Geological Services Sections and a Mining Inspection Section (in the Yukon only).

Mining Lands Sections

The Mining Lands Section in the Yukon and Northwest Territories administrative offices have been divided into seven mining districts. A mining recording staff is responsible for the disposition of mineral rights within each district in accordance with applicable legislation. There is a Supervising Mining Recorder in each Territory whose principal function is to ensure that the regulatory requirements are followed in the administration of the various mining acts and regulations.

Geological Services Sections

Geological Services Sections provide a geological service to the mineral industry in both Territories. Offices are maintained at Whitehorse and Yellowknife. Two core libraries, the H.S. Bostock Library at Whitehorse and the C.S. Lord Library at Yellowknife preserve diamond drill core.

Each core library has laboratory facilities for core splitting, diamond-saw cutting, thin section preparation and core storage. Regional and district geologists conduct mineral property examinations, collect rock and mineral specimens and advise the mineral industry, government departments and research scientists on geological and exploration matters. Department geologists assist prospectors in identifying rock and mineral specimens, by conducting prospector training courses and preparing geological compilation maps on mineralized areas.

Mining Inspection Section

In the Yukon, the Mining Inspection Section gives advice on the Mining Safety Ordinance and Mine Safety regulations of the Yukon Territory as well as the Blasting Ordinance and Regulations of the Yukon Territory.

It also prepares new safety legislation when required. A regional mining engineer is stationed at Whitehorse. This senior mining engineer has a staff consisting of a district engineer, an electrical-mechanical engineer, an environmental engineer, a mine rescue superintendent, three claim inspectors and a clerk.

The Section is responsible for the following: inspection of mines, quarries and blasting operations to ensure compliance with safety legislation; inspection of mineral claims to ensure compliance with the Yukon Quartz Mining Act and the Yukon Placer Mining Act; ensuring that sufficient mine personnel are trained in mine rescue, recovery operations and first aid; conducting ventilation and dust surveys; monitoring radioactive contamination, and carrying out environmental studies at underground and surface mining properties.

Table 6
Exploration — Yukon Territory

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
1	Mattagami	WENDY	Pb, Zn
2	Mattagami	KZ	Pb, Zn
3	ZX Joint Venture/Archer, Cathro	TUDL	Pb, Zn
4	Hudson Bay	TOM	Pb, Zn, Ag, Ba
5	Ogilvie Joint Venture/Aberford	JASON	Pb, Zn, Ag, Ba
5	Cominco	NIDD	Pb, Zn
5	Cominco	HASTEN, BASIN, FETCH	Pb, Zn
5	Amax	FAN	Pb, Zn
6	Hudson Bay	FAL	Pb
6	Hudson Bay	SUN	Pb, Zn, Ba
7	Anaconda	ACE	Pb, Zn, Ba
7	Anaconda	CLARE, BUSH, EARN	Pb, Zn, Ba
8	Anaconda	KAL, BUM	Pb, Zn, Ba
9	Anaconda	RABBIT	Pb, Zn
9	Kidd Creek	SUE	Pb, Zn
10	Noranda	LADY DI	Pb, Zn, Ag
11	Cyprus Anvil	GRUM	Pb, Zn, Ag
12	Cyprus Anvil	TENAS	Pb, Zn
13	Amax/Procan	GREW	Pb, Zn
14	Hudson Bay	RAB	Pb, Zn
14	Hudson Bay	SHALE, RENO, EAGLE	Pb, Zn
15	Placer/Cygnus	Howards Pass	Pb, Zn
16	Cominco	FIN	Pb, Zn
17	Chevron	BAR	Pb, Zn, Ag, Ba
18	BRX Mining	MEISTER	Pb, Zn, Ag
18	Regional/Amax/Procan	MIDWAY	Pb, Zn, Ag
19	Regional	MR	Pb, Zn, Ag
20	Regional	LOGAN	Pb, Zn, Cu, Ag
21	Kerr Addison	GE	Pb, Zn
22	ZX Joint Venture/Archer, Cathro	AUP	Pb, Zn
22	ZX Joint Venture	CUZ	Pb, Zn
22	ZX Joint Venture	QUIVER	Pb, Zn
23	Sulpetro	JONI	Pb, Zn
23	Serem	LOOTZ	Pb

Table 6 (continued)
Exploration — Yukon Territory

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
24	ZX Joint Venture/Archer, Cathro	QUO	Pb, Zn
25	Kidd Creek/Archer, Cathro	TRANZ	Pb, Zn
26	Kidd Creek/Archer, Cathro	MARS, RUSH	Pb, Zn
27	Canada Tungsten	Dublin Gulch (ALEC, MAR)	W
28	Canada Tungsten	CC	W, Au
29	Amax	DRILL	W
30	Union Carbide	WOLF, DAVID, PAT, BLACKIE	W, Sn
30	Amax	DOPE	W
31	Noranda	RAIL	W
32	Hudson Bay	SIM	W
33	Hudson Bay	CAB	W
33	Hudson Bay	BIG, SAM	W
34	Hudson Bay	COOT	W, Cu, Mo
35	Serem	SOURCE	W
36	Hudson Bay	TOD	W
37	Amoco/Tintina	Red Mountain (BUG)	Mo
38	Cominco	PLUTO	Mo, W
39	DC Syndicate	JC	Sn
39	DC Syndicate/J.C. Stephen	JAR	Sn, Zn
40	DC Syndicate	MUN, ROAD	Sn, W
41	DC Syndicate	FF	Sn, W
41	DC Syndicate/J.C. Stephen	ABBA	Sn
42	Texaco	IOTA	Au, Ag, Cu
43	Prism	VERA	Ag, Pb
44	Canada Tungsten	Keno Project	Ag, Pb
45	Union Carbide	ETZEL	Au
46	Union Carbide	OLD CABIN	Au
46	AGIP	ICE, FIRE, SUN	U, Cu, Mo, Au, W
47	Union Carbide	EMMY	Au
47	AGIP	BRICK, NEVE	Au, Ag
48	Hudson Bay	ROSS	Au
49	Iona	KETZA-KEY	Ag, Pb, Zn
50	Archer, Cathro	LILYPAD	Ag
51	Archer, Cathro	NUCLEUS, NITRO	Au
52	Arctic Red	Laforma	Au
53	Silver Tusk/Panther	Tinta Hill	Ag, Au, Zn, Pb, Cu
54	Archer, Cathro	NARNIA	
55	Canadian Nickel	TES	Au, Ag
56	AGIP	GAMMON	Au, Ag
57	Golden Slipper/Logan	Jubilee Mountain	Au, Ag, Cu
58	Canadian Nickel	RAM	Au, Ag

Table 6 (continued)
Exploration — Yukon Territory

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
59	AGIP	KUKU, CHIEF, WOOF	Au, Ag
59	AGIP	GLENLIVET	
59	Archer, Cathro	NAIAD	Au
60	A.M.P./Pure Silver	LOGJAM	Ag, Pb, Zn
61	Klondike Silver	ANT	Ag, Pb
62	Cima	Mt. Hundere	Ag, Zn, Pb
63	Mattagami	TOUCHE	Cu
64	Mattagami	MARN, MELA, DALE	Cu
65	United Keno Hill	STU, HI, FIL, NOON	Cu
66	SMD Mining	AM	Cu
67	DC Syndicate	ORK	Cu
68	DC Syndicate/J.C. Stephen	CAL	Cu
69	Wernecke Joint Venture/Archer, Cathro	FLAT	U
70	Wernecke Joint Venture	PIKE, DEMON	U
71	Wernecke Joint Venture	APE	U
72	Wernecke Joint Venture	IGOR	U
73	Eldorado		U
74	Brinco/Exploram/Archer, Cathro	TURK	Asb
74	Brinco/Exploram	TATER	Asb
75	Mattagami	BANG-ON	Ba
76	Mattagami	HEIDI	Ba
77	Hudson Bay	BAR	Ba
77	Hudson Bay	MAC	Ba
78	Bur Syndicate/Halferdahl	WEN, JO	Ni
79	Sulpetro	Rock River	Coal
80		Sixty Mile River	Placer Au
81		Hunker Creek	Placer Au
81		Klondike	Placer Au
82		Sulphur Creek	Placer Au
83		Clear Creek	Placer Au
84		Burwash Creek	Placer Au
85		Livingstone Creek	Placer Au
a	Whitehorse Copper	NORTH STAR	Cu

Table 7
Exploration — Northwest Territories

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
1	Westmin	Amer Lake	U
2	Urangesellschaft	Sand Lake	U
3	Uranerz	Deep Rose Lake	U
4	Urangesellschaft	LONE GULL	U
5	Inco	Sand Lake	U
6	Uranerz	Beverly Lake	U
7	Kidd Creek	Garry Lakes	U
8	Uranerz	Garry Lakes	U
9	Union Oil	Garry Lakes	U
10	Westmin	Beverly Lake	U
11	Anaconda	Mallery Lake	U
12	Urangesellschaft	Tebesjuak Lake	U
13	Urangesellschaft	Thirty Mile Lake	U
13	Comaplex	Forde Lake	U
14	Aberford	Bissett Lake	U
15	Noranda	Bissett Lake	U
16	Aberford	Yathkyed Lake	U
17	AGIP	Dubawnt Lake	U
18	AGIP	Nowleye Lake	U
19	Urangesellschaft	Kamilukuak Lake	U
20	PNC	Foster Lake	U
21	Urangesellschaft/Hudbay	Elk River	U
22	Uranerz	Power Lake	U
23	PNC	Thekulthili Lake	U
24	PNC	Thekulthili Lake	U
25	Uranerz	Fontano Lake	U
26	BP Minerals	Contact Lake	U
26	Anaconda/BP Minerals/Union Carbide	Munch lake	U
27	Petro-Canada	Kane Basin	Pb, Zn
28	Petro Canada	Bay Fiord — Strathcona Fiord	Pb, Zn
29	Cominco	Cornwallis Island	Pb, Zn
30	Nanisivik	Borden Basin	Pb, Zn
31	L. Anderson/W. Kizan	Rutledge Lake	Pb, Zn
32	E. Dean	East Arm	Pb, Zn
33	Westmin	Pine Point	Pb, Zn
34	Cominco	Hay West	Pb, Zn
35	Norando	BL, TROUT	Pb, Zn
36	Kidd Creek	Amoogabooga Lake	Pb, Zn
37	Kidd Creek	Izok Lake	Cu, Zn, Pb, Ag
38	Kidd Creek/Noranda	GONDOR	Zn, Pb, Ag
38	Kidd Creek	Central Volcanic Belt	Pb, Zn
39	Kidd Creek		Pb, Zn
40	Kidd Creek		Pb, Zn
41	Kidd Creek		Pb, Zn
42	Noranda	ICE, DELTA, SAXIFRAGE	Pb, Zn

Table 7 (continued)
Exploration — Northwest Territories

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
42	Noranda	CANOE	
43	Noranda	ARES	
44	Cominco	KCL	Pb, Zn
44	Cominco	High Lake	Au
45	Noranda	Hope Bay	Pb, Zn
46	Cadillac	Prairie Creek	Pb, Zn, Ag, Cu
46	Procan	Prairie Creek	Pb, Zn
47	Aberford	VULCAN	Pb, Zn
48	Placer/Cygnus	Howards Pass	Pb, Zn
48	Cominco		W
48	Union Carbide		W
48	Amax		W
48	Aberford		W
49	Canadian Nickel	Misty Lake	Pb, Zn
50	Westward	Rankin Inlet	Au
51	Inco	Pork Peninsula	Au
51	Silver Chief	Maze Lake-Pistol Bay	Au
52	Esso	Kaminak Lake	Au, Pb, Zn
53	Esso	Yandle Lake	Au, Pb, Zn
54	Esso	Carnecksluck Lake	Au, Pb, Zn
55	Kognak	Otter Lake	Au
56	Suncor	Fitzpatrick Lake-Watterson Lake	Au
57	Noranda	Griffin Lake	Au
58	Giant Yellowknife	SALMITA	Au
58	Noranda	FAT-Courageous Lake	Au
59	Noranda	WIJ, INN, EDI	Au
60	Noranda	RUSS-1	Au
61	Black Ridge	Gordon Lake (MQ)	Au
61	Kengate	Gordon Lake (JIM)	Au
61	Burnt Island	Gordon Lake (GOO)	Au
62	Noranda	Russell Lake-Slemon Lake	Au
63	Noranda	Uist Lake	Au
64	Linberg and Sibbeston	South Nahanni River	Au
64	Linberg and Sibbeston	Broken Skull River	Au
65	Canadian Nickel		Au
66	Union Carbide	LENED	W
67	Amax	Mactung	W
67	Noranda	Macmillan Pass	Pb, Zn
68	Highwood/Placer	Blachford Lake	Ta, Cb, REE
68	M. Senkiw	Grace Lake	Ta, Cb, REE
69	CF Mineral	Mountain Diatreme	Diamonds
70	CF Mineral	Franklin Mountains	Diamonds

Table 7 (continued)
Exploration — Northwest Territories

Location (1)	Company (2)	Property/Area (3)	Mineralization (4)
70	Diapros	Blackwater River	Diamonds
71	Diapros	Brodeur Peninsula	Diamonds
72	Diapros	Somerset Island	Diamonds
73	Diapros	Prince of Wales Island	Diamonds
74	Borealis	Roche Bay	Fe
75	W. Reid	Victoria Island	Fe
76	Petro-Canada	Slidre Fiord	Coal
77	Petro-Canada	Bay Fiord-Strathcona Fiord	Coal
78	DIAND	Mary River	Soapstone
79	DIAND	Pangnirtung	Soapstone
a	Canada Tungsten	Tungsten	W
a	Canada Tungsten	Baker Prospect	W
b	Pine Point	Pine Point	Pb, Zn
d	Terra	Camsell River	Ag, Pb, Zn, Cu
f	Nanisivik	Nanisivik	Pb, Zn, Ag
h	Esso	Cullaton Lake	Au
h	Suncor	Cullaton Lake	Au
i	Cominco	Little Cornwallis Island	Pb, Zn

Footnotes for Tables II and III

(1) Table location is made with reference to corresponding numbers on Yukon and Northwest Territories Maps. Locations are approximate.

(2) Abbreviated name of the Company is used: Expl. (Exploration), Ltd. (Limited).

(3) Geographical areas are indicated by small print, whereas claims and groups are capitalized. Abbreviated words are: Peninsula (Pen), River (R), Lake (L).

(4) Metal(s) of primary importance defined by chemical symbols: copper (Cu), gold (Au), lead (Pb), tantalum (Ta), lithium (Li), asbestos (Asb), molybdenum (Mo), silver (Ag), barium (Ba), cobalt (Co), tin (Sn), iron (Fe), tungsten (W), rare earth elements (REE) and uranium (U).

Table 8, Mineral Production — 1973-1982
Tableau 8, Production des Minéraux — 1973-1982

Yukon Territory — Yukon

Mineral *Minéraux*	1973	1974	1975	1976	1977	1978	1979	1980	1981(R)	1982(P)
Gold - Or	$ 2 032 502	4 111 631	5 255 077	4 401 075	4 656 118	8 518 731	13 749 271	63 029 000	66 382 000	42 430 000
g - gr	648 974	823 371	997 986	1 111 949	921 907	1 202 149	1 190 268	2 982 000	3 746 000	2 858 000
Silver - Argent	$ 15 342 856	26 800 905	28 531 397	12 809 321	20 154 760	28 462 559	54 218 064	114 120 000	32 339 000	22 141 000
g - gr	188 921 678	180 082 381	196 943 109	92 697 630	127 415 268	143 459 000	129 982 000	147 000 000	80 000 000	70 000 000
Lead - Plomb	$ 38 013 324	41 194 600	54 888 680	15 999 040	47 627 667	64 322 403	103 374 279	71 558 000	54 935 000	25 950 000
kg - kg	106 831 187	90 242 227	122 863 633	32 035 681	68 621 899	79 233 298	78 250 062	65 771 000	55 970 000	35 838 000
Copper - Cuivre	$ 14 791 665	15 571 426	11 928 559	16 045 963	8 953 814	16 474 354	18 442 058	27 082 000	20 123 000	14 077 000
kg - kg	10 517 104	9 111 183	8 487 245	10 642 540	5 843 210	10 018 826	7 778 231	10 433 000	9 094 000	7 236 000
Zinc - Zinc	$ 61 167 027	60 899 995	95 400 540	39 233 926	80 562 287	74 076 827	109 460 866	88 313 000	94 237 000	63 264 000
kg - kg	114 904 734	79 151 212	115 394 553	47 300 153	102 846 637	96 673 141	113 572 783	90 938 000	78 806 000	58 961 000
Cadmium - Cadmium	$ 45 718	17 331	15 423	13 220	11 595	355				
kg - kg	5 697	1 977	2 050	2 294	1 670	58				
Asbestos - Amiantene	$ 13 915 140	22 752 400	32 820 720	35 310 723	47 493 872	26 948 800				
tonnes - tonnes	91 384	82 459	103 735	103 431	95 590	53 255				
Nickel - Nickel	$ 5 209 621									
kg - kg	1 544 473									
Platinum - Platine	$ 149 458									
g - gr	40 870									
Coal - Charbon										
tonnes - tonnes	17 782	15 447	23 326	9 046	18 779	16 578	23 003	16 529	20 860	
Total	$ 150 667 311	171 348 288	228 840 396	123 813 268	209 460 113	218 804 029	299 244 538	364 102 000	268 016 000	167 862 000

Source: Mineral Policy Sector, Energy, Mines and Resources and Northern Resources and Economic Planning, Indian Affairs and Northern Development.
(P) Preliminary Figures, (R) Revised Figures

Secteur des politiques minières, Energie, Mines et Ressources et Planification des Ressources et de l'économie du Nord, Affaires indiennes et du Nord Canada
(P) chiffres provisoires (R) chiffres révisés

Table 9, Mineral Production — 1973-1982
Tableau 9, Production des Minéraux — 1973-1982

Northwest Territories — Territoires du Nord-Ouest

Mineral *Minéraux*		1973	1974	1975	1976	1977	1978	1979	1980	1981(R)	1982(P)
Gold - Or	$	24 262 894	28 651 414	28 754 047	24 390 081	31 336 428	45 769 718	61 868 488	96 920 000	85 495 000	103 160 000
g - gr		7 747 098	5 737 565	5 460 651	6 162 252	6 204 583	6 458 948	5 355 926	4 209 000	4 825 000	6 949 000
Silver - Argent	$	13 961 789	17 669 851	8 883 385	14 343 774	18 716 934	23 854 173	34 770 651	41 331 000	13 465 000	1 181 000
g - gr		168 591 544	118 728 409	61 319 168	103 794 822	118 325 557	120 237 000	83 358 000	53 000 000	33 000 000	4 000 000
Copper - Cuivre	$	1 106 319	840 719	526 889	639 980	445 850	518 993	941 732	679 000	613 000	489 000
kg - kg		786 610	491 923	374 885	424 469	291 959	315 624	397 191	262 000	277 000	251 000
Lead - Plomb	$	32 261 787	34 932 761	37 254 292	26 440 157	40 833 313	56 898 673	80 117 935	55 853 000	44 680 000	58 877 000
kg - kg		90 667 291	76 524 844	83 390 558	52 942 453	58 832 599	70 088 814	60 645 969	51 337 000	45 522 000	81 310 000
Zinc - Zinc	$	87 541 226	132 251 480	106 650 304	122 438 035	125 104 245	143 911 352	205 600 051	172 556 000	159 764 000	297 900 000
kg - kg		164 449 732	171 886 138	129 002 037	147 610 457	159 709 355	187 809 913	213 323 454	175 685 000	133 604 000	277 635 000
Cadmium - Cadmium	$	61 153		1 027	3 179	2 677					
kg - kg		7 620		137	549	386					
Tungsten - Tungstene	$							53 675 858	68 119 000		
kg - kg		1 464 468	1 613 700	1 477 731	2 158 154	2 284 409	2 885 619	3 254 067	4 007 000	2 515 000	2 948 000
Tungsten and Arsenic Trioxide - Tungstène et trioxyde d'arsenic	$									93 005 000	107 613 000
Total	$	159 195 167	214 346 225	182 069 944	188 255 206	216 439 447	270 952 909	436 974 715	435 458 000	397 022 000	569 220 000

Source: Mineral Policy Sector, Energy, Mines and Resources and Northern Resources and Economic Planning, Indian Affairs and Northern Development.
(P) Preliminary Figures, (R) Revised Figures

Secteur des politiques minières, Energie, Mines et Ressources et Planification des Ressources et de l'économie du Nord, Affaires indiennes et du Nord Canada
(P) chiffres provisoires (R) chiffres révisés